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2008

Annual Operating Plan

for

Fish Production Programs

in the

Salmon River Basin

By

Idaho Department of Fish and Game
U.S. Fish and Wildlife Service
Shoshone-Bannock Tribes
Idaho Power Company
Nez Perce Tribe

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Contents

Salmon River Basin Annual Operating Plan (AOP) 2008

1. Steelhead: ... 3
1.1 Broodyear 2007 Steelhead ... 3
1.1.1 Hagerman National Fish Hatchery ... 3
1.1.2 Magic Valley Fish Hatchery ... 5
1.1.3 Niagara Springs Fish Hatchery ... 7
1.2 Broodyear 2008 Steelhead ... 8
1.2.1 Sawtooth Fish Hatchery ... 8
1.2.2 E.F. Salmon River ... 10
1.2.3 Squaw Creek ... 11
1.2.4 Hagerman National Fish Hatchery ... 13
1.2.5 Magic Valley Fish Hatchery ... 14
1.2.6 Shoshone Bannock Tribes Egg Box Program ... 17
1.2.7 Niagara Springs Fish Hatchery ... 18
1.2.8 Pahsimeroi Fish Hatchery ... 21
1.2.9 Oxbow Hatchery Fish Hatchery ... 24
2. Chinook Salmon ... 26
2.1 Broodyear 2003 Chinook Salmon ... 26
2.1.1 Eagle Fish Hatchery ... 26
2.2 Broodyear 2004 Chinook Salmon ... 27
2.2.1 Eagle Fish Hatchery ... 27
2.3 Broodyear 2005 Chinook Salmon ... 27
2.3.1 Eagle Fish Hatchery ... 28
2.4 Broodyear 2006 Chinook Salmon ... 28
2.4.1 Sawtooth Fish Hatchery ... 28
2.4.2 McCall Fish Hatchery ... 30
2.4.3 Johnson Creek ... 32
2.4.4 Pahsimeroi Fish Hatchery ... 33
2.4.5 Rapid River Fish Hatchery ... 34
2.4.6 Oxbow Fish Hatchery - NA ... 36
2.4.7 Eagle Fish Hatchery ... 36
2.5 Broodyear 2007 Chinook Salmon ... 36
2.5.1 Sawtooth Fish Hatchery ... 36
2.5.2 McCall Fish Hatchery ... 38
2.5.3 Johnson Creek ... 40
2.5.4 Pahsimeroi Fish Hatchery ... 41
2.5.5 Rapid River Fish Hatchery ... 42
2.5.6 Oxbow Fish Hatchery - NA ... 44
2.5.7 Eagle Fish Hatchery ... 44
2.5.8 Shoshone Bannock Tribes Egg Box Program ... 44
2.6 Broodyear 2008 Chinook Salmon ... 45
2.6.1 Sawtooth Fish Hatchery ... 45
2.6.2 McCall Fish Hatchery ... 47

2.6.3 Johnson Creek 50
2.6.4 Pahsimeroi Fish Hatchery 52
2.6.5 Rapid River Fish Hatchery 54
2.6.6 Oxbow Fish Hatchery 57
2.6.7 Eagle Fish Hatchery 59
2.6.8 Shoshone Bannock Tribes Egg Box Program 59
2.6.9 Yankee Fork Supplementation Project (YFCSS) 60
2.6.10 Lemhi River Supplementation Project (LRCSS) 62
3. Rainbow Trout 63
3.1 Broodyear 2007-08 Rainbow Trout 63
3.1.1 Salmon River 63
4. Sockeye Salmon 64
4.1 Broodyear 2003 Sockeye Salmon 64
4.1.1 Eagle Fish Hatchery /Burley Creek Fish Hatchery 64
4.2 Broodyear 2004 Sockeye Salmon 65
4.3 Broodyear 2005 Sockeye Salmon 66
4.3.1 Eagle Fish Hatchery /Burley Creek Fish Hatchery 66
4.4 Broodyear 2006 Sockeye Salmon 67
4.4.1 Eagle Fish Hatchery /Burley Creek Fish Hatchery 67
4.4.2 Sawtooth Fish Hatchery 68
4.4.3 Oxbow Fish Hatchery 68
4.5 Broodyear 2007 Sockeye Salmon 69
4.5.1 Eagle Fish Hatchery /Burley Creek Fish Hatchery 69
4.5.2 Sawtooth FH 70
4.5.3 Oxbow FH 70
4.6 Broodyear 2008 Sockeye Salmon 71
4.6.1 BY08 Eagle Fish Hatchery /Burley Creek Fish Hatchery 71
5. Contacts 73
6. Appendices 75
7. Tables 76

Salmon River Basin Annual Operating Plan (AOP) 2008

(Each section lists contact persons for additional information, coordination, or notification – contact information is listed in Section 5).

1. Steelhead:

All steelhead Oncorynchus mykiss in Idaho are summer steelhead, determined by time of entry into the Columbia River. All steelhead in a brood year spawn in the spring of that year. Idaho's steelhead enters fresh water in one year and spawn the following spring. Idaho has A and B strains of steelhead based on some life history characteristics. Generally A-strain steelhead spend one year in the ocean and return to fresh water during the summer. The B-strain steelhead commonly spends two years in the ocean before returning to fresh water in late summer or autumn.

1.1 Brood Year 2007 Steelhead

1.1.1 Hagerman National Fish Hatchery

The Hagerman NFH LSRCP goal is to provide adult returns for lower river fisheries and return 13,600 adult steelhead over Lower Granite Dam and back to the Snake River Basin. Eggs for the program are obtained from adult returns spawned at Sawtooth FH, Pahsimeroi FH, Dworshak NFH, and in times of need, Oxbow FH. The fish are reared from eyed eggs to smolts at Hagerman NFH, and transported for direct stream release at multiple sites in the Salmon River drainage.

1.1.1.1. Production status - As of December 1, 2007 Hagerman NFH has a total of 1,029,770 Sawtooth A, 199,582 Pahsimeroi A, and 206,755 Dworshak B steelhead on station (145 mm average total length, 15.3 fpp). *Bryan Kenworthy / Nate Wiese*

1.1.1.2. Outside rearing - Fish are reared in three banks of raceways at a maximum density index of 0.20 and a maximum flow index of 1.20. Yankee Fork supplementation smolts will be reared separately from general production smolts. All fish are fed dry extruded floating diets which are placed into demand feeders twice weekly. A length at release standard of 180 mm to 250 mm is established under the NOAA Fisheries 1999 Biological Opinion. The BY2007 steelheads are projected for an average size of 220 mm. This will be accomplished by adjusting the hatchery constant. Sample counts are performed monthly on representative ponds and length frequencies are checked periodically during outside rearing. Oxygen and ammonia are monitored during periods of peak loading. Water temperature remains a constant 59^0F. *Bryan Kenworthy / Nate Wiese*

1.1.1.3. Monitoring and evaluation - The BY2007 Mark Plan included 1,110,000 AD, and 140,000 CWT which were completed August 2007 A total of 31,100 PIT tags are scheduled to be implanted in February 2008 (Table 1). *Bryan Kenworthy / Nate Wiese*

Idaho Fish and Game Department (IDFG) – Coded Wire Tag and PIT (Passive Integrated Transponder) evaluations. A release of 80,000 AD/CWT BY2007 Sawtooth steelhead is planned for the Sawtooth Weir in 2008. In addition, a release of 30,000 AD/CWT BY2007

Clearwater steelhead to the Little Salmon River and a release of 30,000 AD/CWT BY2007 Clearwater steelhead to the East Fork Salmon River is planned for 2008. Coded-wire tags will be used to measure adult contribution to fisheries, as well as evaluate total adult returns by release group. The IDFG performs CWT, PIT, and smolt-to-adult return evaluations. PIT tags are used to estimate both juvenile out-migration and adult return success. The Sawtooth CWT was split into 40,000 CWT groups in first-use and third-use rearing water to compare smolt-to-adult survival against rearing conditions. *Tom Rogers/Brian Leth*

Approximately 31,100 fish will be PIT tagged across all release groups to evaluate both juvenile outmigration success and to provide estimates of the number of adult returns to Lower Granite Dam. Additionally, these PIT tags will be used in the evaluation of the Comparative Survival Study (CSS). Seventy percent of the PIT tagged fish will be treated similarly to the untagged population (run-at-large) with regard to transportation and bypass operations. The remaining 30% will be returned to the river to evaluate juvenile survival to Lower Granite Dam and to estimate river reach survival. A background and summary of the CSS study (10 year retrospective report) can be found at http://www.fpc.org/documents/CSS/FINAL *Brian Leth*

Shoshone-Bannock Tribes (SBT) – DNA Parentage Exclusion Analysis (Denny 2006) Steelhead smolt will be reared separately from general production fish. The SBT is conducting an experimental supplementation study using steelhead released as smolt in the Yankee Fork Salmon River. This study includes genetic DNA parental exclusion as described by Jones and Ardren (2003) to differentiate steelhead produced from smolt or stream-side incubators from naturally produced steelhead in the watershed. SFH broodstock used to supply eyed eggs (supplementation fish) are genotyped, therefore later producing identifiable progeny when captured and sampled as F1 juveniles and F1 adults. F2 progeny will be detected using DNA typing through grandparentage analysis of unknown matings (Letcher and King 2001). *Lytle Denny*

1.1.1.4. Juvenile fish health - Mortality and selected fish pathogens are monitored monthly until release. A pre-release exam on 60 fish each of the three populations will be performed prior to the start of distribution. Prior to release, a 60 fish sample is taken and assayed for Infectious Hematopoietic Necrosis Virus (IHNV), Infectious Pancreatic Necrosis Virus (IPNV), Viral Hemorrhagic Septicemia Virus (VHSV), Aeromonas salmonicida, Yersinia ruckerii, Bacterial Kidney Disease (BKD), and Myxobolus cerebralis. *Kathy Clemens*

1.1.1.5. Projected release - Projected releases in 2008 total: 1,427,000 smolts (1,029,000) Sawtooth A's (144,000 unmarked), 198,000 Pahsimeroi A's (all unmarked), and 200,000 Dworshak B's. Target release length is 220 mm and target release size is 4.5 fpp (Table 1). Release locations will be according to the guidelines established by the NZMS Risk Assessment. *Bryan Kenworthy / Nate Wiese*

1.1.1.6. Excess production strategies - No excess production is anticipated. Current egg requests are maintained to receive only enough eggs to meet target numbers at release (+ 10%). *Bryan Kenworthy /Nate Wiese*

1.1.1.7. Transportation strategies - All of the Hagerman NFH steelhead smolt releases are trucked. Hauling will begin the last week of March and conclude the second week of May. The Hatchery will follow IHOT fish transportation guidelines. Hauling typically occurs Monday through Friday. Releases at the Little Salmon River will be coordinated with Magic Valley FH, Niagara Springs FH, and McCall FH, to minimize potential traffic and safety issues. East Fork Salmon River and Sawtooth weir releases will be coordinated with Sawtooth FH. Yankee Fork releases will be coordinated with the Shoshone Bannock Tribes (SBT). *Bryan Kenworthy/Nate Wiese/Rick Lowell/Jerry Chapman/Gene McPherson /Brent Snide/Lytle Denny/Bruce McCloud*

1.1.2 Magic Valley Fish Hatchery

The Magic Valley FH LSRCP adult mitigation return goal is to provide adult returns for lower river fisheries and 11,660 adult steelhead over Lower Granite Dam and back to the Snake River Basin. To attain that goal, the planned production is: 690,000 Pahsimeroi/Sawtooth A; 691,000 Dworshak B; 60,000 Upper Salmon B; and 150,000 East Fork Natural smolts. See Table 1 for release locations. Eggs for the program are obtained from adults trapped at Sawtooth FH, Pahsimeroi FH, Dworshak NFH, Squaw Creek Trap, and the East Fork Salmon River Trap. All stocks are reared to smolt size at Magic Valley FH and transported for direct stream or acclimated release at multiple sites in the Salmon River.

1.1.2.1. Production status - As of November 28, 2007, Magic Valley FH has a total of 349,333 Sawtooth A, 380,860 Pahsimeroi A, 708,400 Dworshak B, 63,691 Upper Salmon B, and 161,331 East Fork Natural steelhead on station (170.7 mm average total length, 8.5 fpp). *Rick Lowell*

1.1.2.2. Outside rearing - Fish are reared in four banks of raceways split in half with two west banks and two east banks. Yankee Fork supplementation smolts will be reared separately from general production smolts. Density typically reaches an index of 0.30 and a maximum flow index of 1.20. All fish are fed a Rangen's 470 dry extruded slow sinking diet. This high protein diet is used in an attempt to reduce the incidence of sore-back and to meet TMDL and NPDES limits. Fish are fed on a Five-day-on and Two-day-off schedule to control growth as needed during the fall. Seven-day-a-week feeding resumes as soon as possible in the spring. A length at release target of 180 mm to 250 mm was established under the NOAA Fisheries 1999 Biological Opinion. The BY2007 steelhead are projected for an average size of 220 mm. This will be accomplished by adjusting the fish feeding rate. Sample counts are performed monthly on representative ponds, and length frequencies are calculated prior to transport. Dissolved oxygen and total gas saturation are monitored intermittently throughout the rearing cycle. Water temperature remains a constant 58^0F. *Rick Lowell/ Pat Moore*

1.1.2.3. Monitoring and evaluation - The BY2007 Mark Plan included 1,410,000 AD, and 450,000 CWT which were completed August 2007. A total of 34,800 PIT tags will be implanted during mid- March, 2008 (Table 1). Fish will be PIT tagged across all release groups to evaluate both juvenile outmigration success and to provide estimates of the number of adult returns to Lower Granite Dam. Additionally, these PIT tags will be used in the evaluation of the Comparative Survival Study (CSS). Seventy percent of the PIT tagged fish will be treated similarly to the untagged population (run-at-large) with regard to transportation and bypass operations. The remaining 30% will be returned to the river to evaluate juvenile survival to Lower Granite Dam and to estimate river reach survival. A background and summary of the CSS study (10 year retrospective report) can be found at http://www.fpc.org/documents/CSS/FINAL. *Rodney Duke/Brian Leth*

Shoshone-Bannock Tribes (SBT) – DNA Parentage Exclusion Analysis (Denny 2006) Steelhead smolt will be reared separately from general production fish. The SBT is conducting an experimental supplementation study using steelhead released as smolt in the Yankee Fork Salmon River. This study includes genetic DNA parental exclusion as described by Jones and Ardren (2003) to differentiate steelhead produced from smolt or stream-side incubators from naturally produced steelhead in the watershed. SFH broodstock used to supply eyed eggs (supplementation fish) are genotyped, therefore later producing identifiable progeny when captured and sampled as F1 juveniles and F1 adults. F2 progeny will be detected using DNA typing through grandparentage analysis of unknown matings (Letcher and King 2001). *Lytle Denny*

1.1.2.4. Juvenile fish health - Fish health inspection and diagnostic services will be provided by personnel and facilities at the EFHL. Mortality rates will be monitored monthly via the written hatchery reports and through direct communication. Diagnostic services will be provided as needed at the request of hatchery personnel. Quarterly on-site inspections will include tests for the presence of replicating viruses, *Renibacterium salmoninarum (*RS), and general bacterial pathogens. A pre-liberation inspection will be done on all lots no more than 45 days prior to transportation, including an organosomatic index of fish quality. Specific pathogens tested for at pre-liberation will include IHNV, IPNV, VHSV, RS, *Aeromonas salmonicida, Yersinia ruckerii, Myxobolus cerebralis*, and any other pathogens that may seem prudent at the time. *Doug Burton*

1.1.2.5. Projected release - Projected release in 2008 is 1,591,000 smolts: 320,000 Sawtooth A's (80,000 unmarked), 370,000 Pahsimeroi A's 691,000 Dworshak B's, 60,000 Upper Salmon B's, and 150,000 East Fork Naturals (30,000 Ad/CWT, 60,000 unmarked, 60,000 unmarked with CWT). Target release length is 220 mm and target release size is 4.5 fpp (Table 1). *Rick Lowell/Pat Moore.*

1.1.2.6. Excess production strategies - Similar production relative to the BY2006 mark plan is anticipated. Initial BY2006 planning included a twenty percent reduction in production from the original hatchery release goal of two million smolts. However, current egg requests are estimated to receive enough eggs to meet target (1.6 million) numbers at release (+ 10%). *Sam Sharr*

1.1.2.7. Transportation strategies - All of the Magic Valley FH steelhead smolt releases are trucked. Hauling is scheduled to begin on April 7th, and conclude on April 30th. The Hatchery will follow IHOT fish transportation guidelines and NZMS risk assessment guidelines Hauling typically occurs Monday through Friday. Releases at the Little Salmon River will be coordinated with Niagara Springs FH, McCall FH, and the Hagerman NFH to minimize potential traffic and safety issues. East Fork Salmon River and Squaw Creek Pond releases will be coordinated with Sawtooth FH. Yankee Fork, Valley Creek, and Slate Creek releases will be coordinated with the SBT via the IDFG Fisheries Bureau. *Sam Sharr/Bryan Kenworthy/Rick Lowell/Jerry Chapman/Gene McPherson/Brent Snider/Lytle Denny.*

1.1.3 Niagara Springs Fish Hatchery

IPC's mitigation goal at Niagara Springs FH is to annually produce 400,000 pounds of healthy steelhead smolts. This equates to approximately 1.8 million smolts at a mean size of 4.5 fpp. Eggs for the program are obtained from adult returns spawned at Pahsimeroi FH and Oxbow FH. The fish are reared from eyed eggs and swimup fry to smolts at Niagara Springs FH and released into the Pahsimeroi River below the Pahsimeroi FH weir, into the Snake River below Hells Canyon Dam, and into the Little Salmon River at Stinky Springs or Hazard Creek. *Jerry Chapman*

1.1.3.1. Production status - Niagara Springs FH had a total of 885,658 Pahsimeroi-A and 789,226 Oxbow-A steelhead on station on December 1, 2007. *Jerry Chapman*

1.1.3.2. Outside rearing - Fish are reared in three banks of raceways at a maximum density index of 0.35 lbs/ft^3/in and a maximum flow index of 0.9 lbs/gpm/in. Steelheads are fed Rangen's extruded dry feeds throughout the early rearing period. Feed is dispensed by hand-feeding and supplemented with Ziegler belt feeders in the indoor and outdoor nursery areas. When fish reach 75 fpp, they are switched to Rangen's slow-sinking 470 extruded diet to allow staff to utilize two bulk tanks, a feed conveyor system, a fines separator and bridge feeders.

A length at release standard of 180 to 250 mm is established under the NOAA Fisheries 1999 Biological Opinion. The BY2007 steelheads are projected for an average size of 220 mm. This will be accomplished by holding the fish off feed and receiving eggs from later spawn dates to decrease fish size and minimize days off feed. Sample counts are performed bimonthly on representative raceways until December and then performed once per month until release. Length frequencies are checked periodically during outside rearing. Dissolved oxygen is monitored once per month as per NPDES protocol and periodically during periods of peak loading. Water temperature remains a constant 59°F. *Jerry Chapman*

1.1.3.3. Monitoring and evaluation - The BY2007 Mark Plan requires all fish to be ad-clipped, while 150,000 fish also have CWTs. AD-clipping and CWT tagging were completed during September 2007. A total of 1,200 PIT tags will need to be implanted prior to March 1, 2008. *Jerry Chapman*

1.1.3.4. Juvenile fish health - Fish health inspection and diagnostic services will be provided by personnel at the Eagle Fish Health Laboratory (EFHL). Mortality rates will be monitored and reported monthly via the written hatchery reports and through direct communication. Diagnostic services will be provided as needed at the request of hatchery personnel. Quarterly on-site inspections will include tests for the presence of replicating viruses, *Renibacterium salmoninarum* (RS) and general bacterial pathogens. A pre-liberation inspection of fish from each stock (Pahsimeroi-A and Oxbow-A) including an organosomatic index of fish quality will be done on all lots no more than 45 days prior to transportation. Specific pathogens tested for at pre-liberation will include IHNV, IPNV, VHSV, RS, *Acrimonies salmonicida*, *Yersinia ruckerii*, *Myxobolus cerebralis* and any other pathogens that may seem prudent at the time. Approximately 70% of the steelhead from BY2007 were vaccinated against Furunculosis bacteria. *Doug Burton, Eagle Fish Health Lab*

1.1.3.5. Projected release - Projected releases in 2008 are: 830,000 Pahsimeroi-A smolts to the Pahsimeroi River; 525,000 Oxbow-A smolts to the Snake River below Hells Canyon Dam; 260,000 Oxbow-A smolts to the Little Salmon River; and 56,000 Pahsimeroi-A smolts to the Little Salmon River. Target release length is 220 mm and target release size is 4.5 fpp. *Jerry Chapman*

1.1.3.6. Excess production strategies - No excess production is anticipated. Release inventories over 10 percent of the allocation to the Pahsimeroi River and Snake River release sites will be retained at the hatchery for outplanting in approved non-anadromous waters. *Jerry Chapman*

1.1.3.7. Transportation strategies - All Niagara Springs FH steelhead smolts are trucked to release sites using three IPC 5,000-gallon fish tankers. IPC will contract with Niel Ring Trucking, Inc. to haul fish to their release locations. Hauling is scheduled to begin March 19 and conclude the fourth week of April. All fish are hauled in chilled spring water with the temperature adjusted to be within 3 degrees F of the receiving water. Tankers will be loaded with approximately 5,000 lbs. of fish each, but will not exceed 5,500 lbs. Shipping will occur five days per week until all fish are stocked, with one day off in early April to complete a mid-season service on the tankers' generators. To reduce potential traffic and safety issues, releases at the Little Salmon River will be coordinated with Joel Patterson of McCall FH, staff from Magic Valley FH and Hagerman NFH, and Bruce McLeod of the NPT. Releases at the Pahsimeroi River and Snake River sites will be coordinated with the Pahsimeroi and Oxbow hatchery managers. *Jerry Chapman*

1.2 Brood Year 2008 Steelhead

1.2.1 Sawtooth Fish Hatchery

Approximately 525 pair of steelhead adults are needed to provide 2,130,000 eyed eggs for the LSRCP mitigation program (Table 12). Eggs are eyed and shipped to Magic Valley FH or Hagerman NFH for final rearing. In addition, eyed eggs are provided for the Shoshone-Bannock Tribes streamside incubator project. Approximately 750,000 smolts are returned

to Sawtooth from Hagerman NFH for weir release to provide harvest opportunity and brood stock.

1.2.1.1. Projected adult return - The projected return is 2,128 (95% CI 652-3604). *Jon Hansen*.

1.2.1.2. Ladder operation - Ladder and trap operations will begin the last week of March and continue until early May. Steelhead volitionally swim into attraction water into a single adult holding pond. The trapped steelhead are removed from the holding pond twice a week, counted into the male/female holding ponds, or spawned if ripe. Unmarked steelhead and other species are released above the weir, hatchery fish are spawned with surplus hatchery fish outplanted, or given to the tribes, or distributed to welfare programs. *Brent Snider*

1.2.1.3. Adult fish health - Adult steelhead monitoring will be conducted during spawning by personnel from the EFHL. Broodstock inspections will collect 120 ovarian fluid and 30 tissue (kidney/spleen) samples to assay for viral replicating agents from at least 150 females. Thirty kidney/spleen (tissue) samples and 120 ovarian fluid samples will be taken for viral replicating agent screening. Sixty kidney samples will be collected for ELISA testing for *Renibacterium salmoninarum* and 20 head wedges will be collected from returning adults to examine for *Myxobolus cerebralis*. *Doug Munson*

1.2.1.4. Adult outplanting/marking - Unmarked adults are released upstream of the hatchery weir to spawn naturally. Genetic material is collected from all unmarked steelhead. Excess hatchery adult males, after being marked with an opercle punch, may be taken downriver to be recycled through the fishery. *Brent Snider*

1.2.1.5. Carcass disposition - Spawned out carcasses are made available first to Tribal programs and charitable organizations. Secondly, excess, unspawned, and spawned-out fish are given to the public on a first-come-first-served basis. Due to whirling disease amplification issues, carcasses will not be used for nutrification of local waters. *Brent Snider*

1.2.1.6. Adult Monitoring and evaluation - Fish are sorted on Mondays and Thursdays. At sorting, fish are examined for gender, length measured, checked for various clips, radios, CWT, injuries, and readiness to spawn. Subsequent to sorting, ripe fish are spawned. To assess the utility of genetic parentage based analysis, tissue samples will be collected from every individual adipose fin clipped fish used for broodstock in 2008. Genetic samples will also be collected from all trapped unmarked steelhead. *Brent Snider*

1.2.1.7. Spawning/egg take plans, mating protocol - Approximately 525 females (m/f ratio is variable, generally more males than females 65:35 or 60:40) will be spawned, representative of the run, which will provide enough eyed eggs to meet egg requests (Average fecundity 4,700 of 525 females produces 2,467,500 green eggs at average 85% eye-up). Spawning protocol is random 1: 1 with two female's eggs combined prior to water hardening of eggs. Hagerman NFH will receive 1,150,000 eyed eggs; Magic Valley

FH will receive 352,500 and the SBT 500,000 for a total of 1,952,000 eyed eggs. *Brent Snider*

1.2.1.8. Egg incubation - Prior to incubation, all eggs will be water hardened with a 100 mg/l iodine solution for one hour. Prior to transport, eggs will receive a flush with iodophor three times per week during incubation. Only eyed eggs will be transferred to Hagerman NFH and Magic Valley FH. After eggs manifest a strong "eye" the eggs are sorted and enumerated mechanically. *Doug Munson*

1.2.1.9. Juvenile fish health - Does not apply. These fish are reared at Magic Valley FH and Hagerman NFH.

1.2.1.10. Communication - Coordination of eyed egg shipments among the hatcheries is discussed weekly. Weekly communication for egg delivery status is undertaken with SBT Biologists. Twice weekly, run status is updated on the IDFG Webpage. Weekly summaries are provided to interested parties via e-mail. Eyed egg requests are finalized at the annual AOP meeting. *Brent Snider*

1.2.2 E.F. Salmon River

Approximately 10 pair of naturally produced adult steelhead are needed at the East Fork Trap to produce eyed eggs (Table 12) for the 50,000 smolt target for this program.

1.2.2.1. Projected adult return – No estimate available. *Brent Snider*

1.2.2.2. Ladder operation - Trapping operations coincide with Sawtooth FH trapping. Once the velocity barrier is in place, fish swim up attraction water into a holding area and are sorted daily. *Brent Snider*

1.2.2.3. Adult fish health - Adult steelhead monitoring will be conducted during spawning by the EFHL. Broodstock inspections will collect ovarian fluid (120 samples) and tissue (kidney/spleen; 30 samples) samples to assay for viral replicating agents from up to 150 females. Spawning crews will collect up to 60 kidney samples for ELISA testing for *Renibacterium salmoninarum* and 20 head wedges will be collected from returning adult Steelhead and examined for *Myxobolus cerebralis*. *Doug Munson*

1.2.2.4. Adult outplanting/marking - Released fish are opercle punched to identify possible recaptures. All unmarked steelhead trapped are tissue sampled for genetic data. *Brent Snider*

1.2.2.5. Carcass disposition - Spawned out carcasses are returned to Sawtooth FH, kept frozen, and disposed of in the local landfill. Due to whirling disease amplification issues, carcasses will not be used for nutrification of local waters. *Brent Snider*

1.2.2.6. Adult monitoring and evaluation - Similar to M&E at Sawtooth FH, except fish are checked daily and spawning occurs whenever there are ripe females and ripe males available. To assess the utility of genetic parentage based analysis, tissue samples will be

collected from every individual adipose fin clipped fish used for broodstock in 2008. Genetic samples will also be collected from all trapped unmarked steelhead. If any adipose fin clipped fish are released upstream of the weir to spawn naturally in 2008 tissues samples for genetics analysis will be taken from all of those fish as well. *Brent Snider*

1.2.2.7. Spawning/egg take plans, mating protocol - Continuing with the Natural Steelhead Program that began in 2001, the plan for trapping and spawning returning steelhead in 2008 is to retain enough eggs taken from Hatchery-Origin steelhead (designated as H-O by presence of a Coded Wire Tag or frayed fins from hatchery rearing) enhanced with a component of steelhead eggs taken from Natural-Origin steelhead (designated as N-O by lack of tag present and unmarked or undamaged fins) to produce 50,000 smolts for the East Fork Weir Release Group (EFWRG) of non-adipose fin-clipped smolts. Anticipating a lower egg-to-smolt survival conversion of natural steelhead reared in a hatchery than that of hatchery steelhead, the target egg take was increased to 70,000 steelhead eggs to achieve the target of 50,000 smolts. In order to incorporate natural steelhead genetics into the hatchery broodstock, one of every three N-O females trapped at the EFSR weir in 2008 is to be crossed with a HO male. Spawning occurs when ripe fish are available. Green eggs are brought to Sawtooth FH for incubation and sent to Magic Valley FH for final incubation and rearing. (Check on US v Oregon language if applicable). *Brent Snider*

1.2.2.8. Egg incubation - Prior to incubation; all eggs will be water hardened with a 100 mg/l iodine solution for one hour. After eggs manifest a strong "eye" the eggs are sorted and enumerated mechanically. Smolts are released into the pool above the velocity barrier. *Brent Snider*

1.2.2.9. Juvenile fish health - Does not apply, rearing occurs at Magic Valley FH.

1.2.2.10. Communication - Coordination of eyed egg shipments among the hatcheries is discussed weekly. Eyed egg requests are finalized at the annual AOP meeting. Weekly communications occurs with IDFG research and IDFG Salmon Region personnel. *Brent Snider*

1.2.3 Squaw Creek

Approximately 70 pair of B-run steelhead adults are needed annually to provide eyed eggs (Table 12) for smolts to be released into Squaw Creek and Squaw Creek Pond.

1.2.3.1. Projected adult return - The forecast for adult 2-ocean steelhead returning to Squaw Creek in 2008 is not available at this time. *Brian Leth*

1.2.3.2. Ladder operation - A weir and trap box will be put into place in Squaw Creek approximately 200 meters upstream of the confluence of Squaw Creek and the Salmon River. Trapping occurs from late March through early May. Heavy springtime runoff and freezing temperatures can have an effect on the weir and trap operation and must be monitored daily. *Brent Snider*

1.2.3.3 Adult fish health - Adult steelhead monitoring will be conducted during spawning by the EFHL. Broodstock inspections will collect 120 ovarian fluid and 30 tissue (kidney/spleen) samples to assay for viral replicating agents from up to 150 females. Spawning crews will collect up to 60 kidney samples for ELISA testing for *Renibacterium salmoninarum* and 20 head wedges will be collected from returning adult steelhead to examine for *Myxobolus cerebralis*. *Doug Munson*

1.2.3.4. Adult outplanting/marking - If the fish is a female larger than 75 cm in length or a male larger than 79 cm in length, then these fish are considered B-run steelhead. All marked B-run fish are taken to the East Fork facility for spawning. These fish receive a unique external mark to differentiate from East Fork steelhead. Fish not meeting the criteria for B-stock fish are considered A-stock fish. These fish are examined for CWT. If CWT is present, the snout is taken and the carcass brought to Sawtooth FH. If no CWT is detected, then unmarked fish are released into Squaw Creek above the weir. Marked fish not meeting the size criteria are released into the Salmon River after receiving another identifying mark. All unmarked fish are released above the Squaw Creek weir. Genetic material samples are collected from all unmarked fish trapped at the weir and 100% of the marked B-run fish taken to the East Fork facility and spawned for broodstock. *Carl Stiefel/Brent Snider*

1.2.3.5. Carcass disposition - Spawned out carcasses are made available first to charitable organizations and Tribal programs. Secondly, excess, unspawned, and spawned-out fish are given to the public on a first-come-first-served basis. Due to whirling disease amplification issues, carcasses will not be used for nutrification of local waters. *Brent Snider*

1.2.3.6. Adult monitoring and evaluation - All fish are measured, examined for gender, various clips, radios, CWT, injuries, and readiness to spawn. Genetic material samples are collected from all unmarked fish trapped at the weir and 100% of the marked B-run fish taken to the East Fork facility and spawned for broodstock *Brent Snider*

1.2.3.7. Spawning/egg take plans, mating protocol - All B-run hatchery fish are spawned following a 1:1 random mating protocol. Eggs are incubated at Sawtooth FH and shipped as eyed eggs to Magic Valley FH for final incubation and rearing. Production depends on how many broodstock are available, (750,000 smolts release – 70 pair B-run) and backfill with Dworshak stock. *Brent Snider*

1.2.3.8. Egg incubation - Prior to incubation; all eggs will be water hardened with a 100 mg/l solution of iodine for one hour. After eggs manifest a strong "eye" the eggs are sorted and enumerated mechanically. *Brent Snider*

1.2.3.9. Juvenile fish health - NA

1.2.3.10. Communication - IDFG Research assists Sawtooth FH personnel in developing trap management plans. Egg production and shipments are coordinated between Sawtooth FH and Magic Valley FH. *Carl Stiefel/ Brent Snider*

1.2.4 Hagerman National Fish Hatchery

The Hagerman NFH LSRCP goal is to provide adult returns for lower river fisheries and return 13,600 adult steelhead over Lower Granite Dam and back to the Snake River Basin. Eggs for the program are obtained from adult returns spawned at Sawtooth FH, Pahsimeroi FH, Dworshak NFH, and in times of need, Oxbow FH. The fish are reared from eyed eggs to smolts at Hagerman NFH, and transported for direct stream release at multiple sites in the Salmon River drainage.

1.2.4.1 Egg incubation - Hagerman NFH will request and disinfect eyed eggs (Sawtooth A and Pahsimeroi A from Sawtooth FH and , Dworshak B from Clearwater FH) (Table 12). Eyed steelhead eggs will be shipped between 370 and 450 TUs. Shipments will occur in May and June 2008. Egg shipments and deliveries will be coordinated with Sawtooth FH, Magic Valley FH, and Clearwater FH. *Nate Wiese/ Brent Snider/Rick Lowell / Jerry McGehee.*

1.2.4.2. Nursery Rearing - Eyed eggs are loaded into upwelling incubators at 20,000 to 27,500 eggs per jar with a flow rate of 6 to 8 gallons per minute (gpm). Typically, the Sawtooth stock is reared in Hatchery Building 1, and the Pahsimeroi and Dworshak stocks are reared in Hatchery Building 2. Sac fry are transferred from incubators into indoor rearing tanks and feeding is initiated when 80% of the fry achieve swim-up. Feeding typically begins 15 to 17 days post-hatch. Dry salmon diets are fed at a minimum frequency of once per hour during rearing in the hatchery buildings. Flows in rearing tanks are ramped up to, and then maintained at, 60 gpm. Fish are reared inside to a maximum density index of 0.80 and a maximum flow index of 1.00. Fish are marked from the Hatchery buildings in August at approximately 100 fpp and ponded in final rearing raceways. Generally, the Clearwater and Pahsimeroi stocks are reared on the lower deck raceways. *Nate Wiese*

1.2.4.3. Outside Rearing - Once outside, fish are hand-fed the Hagerman Diet, a dry extruded floating salmon diet specified by the Abernathy Fish Technology Center. Feeding duration varies by fish and feed size from as high as six times per day, to as low as two times per day. All fish are fed a dry extruded floating diet which is placed into demand feeders twice weekly. The NOAA Fisheries 180 to 250 mm length at release criteria is met by adjusting the hatchery constant. Sample counts are performed monthly on representative ponds and length frequencies are checked periodically. During February 2009, IDFG staff PIT tag a representative group of fish from each stock being reared. *Nate Wiese*

1.2.4.4. Juvenile fish health - Juvenile fish health monitoring is conducted monthly, except when there are no fish on station, and diagnostic exams are performed as needed. The Idaho Fish Health Center performs these tasks. Pre-liberation inspections are performed at least two weeks prior to the first day of liberation. Prior to release, a 60 fish sample is taken and assayed for IHNV, IPNV, VHSV, *Aeromonas salmonicida, Yersinia ruckerii, BKD* and *Myxobolus cerebralis*. Fish health exam forms are provided to the hatchery as well as a summary at year-end. *Kathy Clemens*

1.2.4.5. Planned juvenile marking & tagging, release sites - Numbers of fish marked, mark type, and release location are established by the annual IDFG Steelhead Mark Plan which incorporates other agreements and processes such as US vs Oregon. Generally, numbers marked break out as follows: 910,000 AD clipped Sawtooth A (of which 80,000 are CWT), 200,000 AD clipped Dworshak B (60,000 are CWT), 200,000 unmarked Pahsimeroi A, and 140,000 unmarked Sawtooth A. In addition, a representative number of fish from each release site receives PIT tags (February 2009). Marking and tagging must occur in mid August 2008. Marking is coordinated with Niagara Springs FH, Magic Valley FH, and the IDFG Marking Crew. *Tom Rogers/Jerry Chapman/Rick Lowell/Rod Duke/Bryan Kenworthy/Nate Wiese.*

1.2.4.6. Juvenile monitoring and evaluation - The IDFG performs CWT, PIT, and smolt-to-adult return evaluations. PIT tags are used to evaluate juvenile out-migration success and adult returns to Lower Granite Dam. Expectations for brood year 2008 PIT tagging includes approximately 20,000 from LSRCP funding. Funding from the CSS project is uncertain at this point. CWT's will be used to measure adult contribution to fisheries, as well as evaluate total adult returns by release group. CWT's for the BY2008 Sawtooth release group will be divided equally into first-use and third-use rearing water to compare smolt-to-adult survival against rearing conditions. *Tom Rogers/Brian Leth/Nate Wiese/Bryan Kenworthy/Ray Jones*

Shoshone-Bannock Tribes (SBT) – DNA Parentage Exclusion Analysis (Denny 2006) Steelhead smolt will be reared separately from general production fish. The SBT is conducting an experimental supplementation study using steelhead released as smolt in the Yankee Fork Salmon River. This study includes genetic DNA parental exclusion as described by Jones and Ardren (2003) to differentiate steelhead produced from smolt or stream-side incubators from naturally produced steelhead in the watershed. SFH broodstock used to supply eyed eggs (supplementation fish) are genotyped, therefore later producing identifiable progeny when captured and sampled as F1 juveniles and F1 adults. F2 progeny will be detected using DNA typing through grandparentage analysis of unknown matings (Letcher and King 2001). *Lytle Denny*

1.2.4.7. Communication - Hagerman NFH distributes a monthly hatchery production summary, a monthly narrative, and an annual report. Hagerman NFH evaluates production programs through a Hatchery Evaluation Team (HET). The HET meets quarterly to plan and coordinate specific studies and program changes or adjustments. The HET will need to review and approve any requests for a particular brood year in advance. *Bryan Kenworthy / Ray Jones/Nate Wiese/Carl Stiefel*

1.2.5 Magic Valley Fish Hatchery

The Magic Valley FH LSRCP adult mitigation return goal is to provide adult returns for lower river fisheries and 11,660 adult steelhead over Lower Granite Dam and back to the Snake River Basin. To attain that goal, the planned production is: 690,000 Pahsimeroi/Sawtooth A; 691,000 Dworshak B; 60,000 Upper Salmon B; and 150,000 East Fork Natural smolts. See Table 1 for release locations. Eyed eggs (Table 12) for the

program are obtained from adults trapped at Sawtooth FH, Pahsimeroi FH, Dworshak NFH, Squaw Creek Trap, and the East Fork Salmon River Trap. All stocks are reared to smolt size at Magic Valley FH and transported for direct stream or acclimated release at multiple sites in the Salmon River.

1.2.5.1. Egg incubation - Magic Valley FH should request numbers similar to BY2007. As a result of a continued reduction in water flow (>25%), production numbers for BY2008 have been decreased by approximately twenty percent from the original target of two million smolts. Final egg request numbers for BY2008 will be confirmed during the IDFG anadromous meeting in January, 2008. Transfer of eggs should occur between 370 and 450 TUs. As a result of the completion of the new Pahsimeroi Hatchery, eggs received from Pahsimeroi may arrive later due to their ability to incubate with chilled water. Delayed transfer of eggs is beneficial because fish will be off feed for fewer days during the final rearing period. Egg shipments and deliveries will be coordinated with Sawtooth FH, Pahsimeroi FH, and Clearwater FH. *Brent Snider/Rick Lowell/Jerry McGehee/Todd Garlie.*

1.2.5.2. Nursery Rearing - Eyed eggs are loaded into upwelling incubators at 50,000 to 65,000 eggs per jar with a flow rate of 6 to 8 gpm. All stocks are reared in the incubation building. Sac fry volitionally swim from incubators into indoor rearing tanks and feeding is initiated when approximately 100% of the fry achieve button-up. Feeding typically begins 18 to 21 days post-hatch. Rangen's semi-moist starter salmon diets are fed at a minimum frequency of once per hour during rearing in the hatchery building. After feed size zero, all early rearing diets are changed to dry feed. Starting flows in rearing tanks are set at 100 gpm, and then increased up to 250 gpm prior to transfer to outside raceways. Fish are reared inside to a maximum density index of 0.60 and a maximum flow index of 1.19. Fish are transferred at approximately 30,000 fish per outside section for a total of 52 sections. Transfer to outside raceways is scheduled to begin in mid- July and completed by mid-August. Fish will range in size from 125 to 300 fpp. *Rick Lowell*

1.2.5.3. Outside Rearing - The upper decks are used for initial outside rearing. Screens are placed at the fifty foot keyway and the upper 100 foot section is divided into two rearing sections. Approximately thirty thousand fish will be placed in each section. Once outside, fish are hand-fed Rangen's #3 and #4 crumble then graduate to larger sizes as growth continues. For approximately the last seven months of growth, smolts are fed Rangen's 470 extruded slow sinking feed. Feeding duration varies by fish and feed size from as high as six times per day, to as low as three times per day. When fish approach density indexes of 0.30, inventory in the lower 50 feet of the A deck, they will be moved to the lower 100 feet (B section) and the inventory in the upper 50 feet will have the entire A section for the final rearing period. The NOAA Fisheries 180 to 250 mm length at release criteria is met by adjusting the hatchery constant. Sample counts are performed monthly on representative ponds and length frequencies are calculated prior to release. During March 2009, IDFG staff will PIT tag a representative group of fish from each stock being reared. *Rick Lowell*

1.2.5.4. Juvenile fish health - Fish health inspection and diagnostic services will be provided by personnel and facilities at the EFHL. Mortality rates will be monitored

monthly via the written hatchery reports and through direct communication. Diagnostic services will be provided as needed at the request of hatchery personnel. Quarterly on-site inspections will include tests for the presence of replicating viruses, *Renibacterium salmoninarum* (RS), and general bacterial pathogens. A pre-liberation inspection will be done on all lots no more than 45 days prior to transportation, including an *organosomatic* index of fish quality. Specific pathogens tested for at pre-liberation will include IHNV, IPNV, VHSV, RS, *Aeromonas salmonicida, Yersinia ruckerii, Myxobolus cerebralis*, and any other pathogens that may seem prudent at the time. *Doug Burton*

1.2.5.5. Planned juvenile marking & tagging, release sites - Numbers of fish marked, mark type, and release location are established by the annual IDFG Steelhead Mark Plan which incorporates other agreements and processes such as US vs Oregon. Projected hatchery spring flows will continue to influence production numbers for BY2008. If spring flow trends continue to decrease, a proportional decrease in production is recommended. Other measures such as oxygen injection or aeration may be addressed to offset reduction in flows as well. As in BY2007, the following proposed numbers for the 2008 steelhead mark plan are also contingent on Hagerman NFH rearing 100,000 of the total production for Magic Valley. Generally, numbers marked break out as follows: 220,000 AD clipped Sawtooth A, 630,000 AD clipped Dworshak B, 440,000 AD clipped Pahsimeroi A, 60,000 unmarked Pahsimeroi A, 110,000 AD clipped Upper Salmon B, 50,000 CWT only East Fork Naturals and 80,000 unmarked Sawtooth A. In addition, a representative number from each release site receives PIT tags. Adipose fin clipping is tentatively scheduled to begin in mid July and should be completed by mid August. If fish are large enough (<150/lb), coded-wire-tagging will be accomplished concurrently with adipose clipping. Typically the East Fork Natural Stock and Upper Salmon B Stock are marked later in August due to the later arrival of eggs. Timing of marking is set up at the Salmon River Basin spring meeting. Marking is coordinated with Niagara Springs FH, Hagerman NFH, and the IDFG Marking Crew. *Sam Sharr/Jerry Chapman/Rick Lowell/Rod Duke/ Bryan Kenworthy.*

1.2.5.6. Juvenile monitoring and evaluation - The IDFG performs CWT, PIT tagging, and smolt to adult return evaluations. PIT tags are used to evaluate juvenile migration and adult return success. Expectations for brood year 2008 PIT tagging include approximately 20,000 from LSRCP funding. Funding from the CSS project is uncertain at this point. Coded-wire tags will be used to measure adult contribution to fisheries, as well as evaluate total adult returns by release group. *Sam Sharr/Brian Leth*

Shoshone-Bannock Tribes (SBT) – DNA Parentage Exclusion Analysis (Denny 2006) steelhead smolt will be reared separately from general production fish. The SBT is conducting an experimental supplementation study using steelhead released as smolt in the Yankee Fork Salmon River. This study includes genetic DNA parental exclusion as described by Jones and Ardren (2003) to differentiate steelhead produced from smolt or stream-side incubators from naturally produced steelhead in the watershed. SFH broodstock used to supply eyed eggs (supplementation fish) are genotyped, therefore later producing identifiable progeny when captured and sampled as F1 juveniles and F1 adults.

F2 progeny will be detected using DNA typing through grandparentage analysis of unknown matings (Letcher and King 2001). *Lytle Denny*

1.2.5.7. Communication - Magic Valley FH distributes monthly hatchery production summaries and annual reports. These will be sent to IDFG Fisheries Bureau personnel, Doug Burton (EFHL Pathologist), and the LSRCP office coordinator. Monthly summaries and annual reports will be made available to the contact list (Section 5) by request. Magic Valley FH evaluates production programs through a LSRCP funded hatchery evaluation biologist stationed at the Nampa Research station. *Rick Lowell*

1.2.6 Shoshone Bannock Tribes Egg Box Program

The SBT developed supplementation activities aimed at improving the viability of natural steelhead populations. Steelhead supplementation may be necessary to maintain high populations to support harvest and improve abundance, productivity, spatial structure, and genetic diversity. Annually, one million eyed steelhead eggs (Table 14) from Sawtooth and Pahsimeroi Fish Hatcheries are transferred to remote incubators where they are incubated on river water to mimic natural hatch timing in the system. *Lytle Denny/Kurt Tardy*

1.2.6.1. Planned juvenile marking/tagging, release sites — Stream-side incubator (SSI) juveniles will not be directly marked. SSI juveniles destined for Yankee Fork are indirectly marked because their parents are tissue sampled during spawning. We estimate 1.0 million eyed eggs will be outplanted in Yankee Fork, Basin Creek, Morgan Creek, Indian Creek, and Panther Creek. Approximately 375,000, 125,000, 125,000, 125,000, and 250,000 eyed eggs will be planted, respectively. Approximately 234 pairs of upper Salmon Group-A summer steelhead are necessary to achieve 1,115,244 green eggs or approximately 1.0 million eyed eggs (average 4,766 eggs/ female * 90% green to eyed-egg survival) to support the SBT incubation program in the upper-Salmon. *Lytle Denny/Kurt Tardy*

1.2.6.2. Ladder operation – Adult trapping will be conducted at Sawtooth and Pahsimeroi Fish Hatcheries. See Sawtooth 1.2.1.2 and Pahsimeroi 1.2.8.2. *Lytle Denny/Kurt Tardy*

1.2.6.3. Adult fish health – Adult fish will be spawned at Sawtooth and Pahsimeroi Fish Hatcheries. See Sawtooth 1.2.1.3 and Pahsimeroi 1.2.8.3. *Lytle Denny/Kurt Tardy*

1.2.6.4. Adult outplanting/marking - Adult outplanting/marking will occur at Sawtooth and Pahsimeroi Fish Hatcheries. See Sawtooth 1.2.1.4 and Pahsimeroi 1.2.8.4. *Lytle Denny/Kurt Tardy*

1.2.6.5. Carcass disposition – Carcasses may been given out at Sawtooth and Pahsimeroi Fish Hatcheries. See Sawtooth 1.2.1.5 and Pahsimeroi 1.2.8.5. *Lytle Denny/Kurt Tardy*

1.2.6.6. Spawning/egg take plans, release sites - Spawning and mating protocols are consistent with those at Sawtooth and Pahsimeroi FH. The SBT will receive 500,000 eyed eggs from Sawtooth A and 500,000 eyed eggs from Pahsimeroi A for a total of 1,000,000 eyed eggs. Egg incubators, otherwise known as upwellers, will be constructed in remote locations. *Lytle Denny*

1.2.6.7. Monitoring and evaluation – DNA tissue samples are collected from all spawned steelhead at Sawtooth FH for Yankee Fork supplementation programs. Eggs obtained from Sawtooth A hatchery stock will be placed into upwellers in Basin Creek and Yankee Fork. Eggs obtained from Pahsimeroi A hatchery stock will be placed into upwellers in Panther, Indian, and Morgan Creeks.

Upwellers will be monitored weekly to assure flow is constant throughout the system. Data will be collected for date, time, water temperature, dissolved oxygen, conductivity, pH, flow velocity, sediment accumulation, life stage, and comments. Dead eggs are enumerated after total volitional fry emigration into catch tanks to estimate hatch success. Under the SBT monitor and evaluation plan, three-pass removal electrofishing studies are conducted in twenty-one randomly, stratified reaches throughout the Yankee Fork Salmon River (YFSR) to collect genetic tissue samples and preliminary density and population estimates. Fork length and mass of each individual will be recorded. Tissue samples from both 0+ and 1+ age *Oncorhynchus mykiss* are transferred to the Abernathy Fish Technology Center for full parental genotyping to identify hatchery-origin fish outplanted as eggs in the YFSR. Genetic parentage analysis will evaluate the relative abundance of hatchery-origin and natural-origin juvenile steelhead in the YFSR. Relative abundance will be measured as the proportion of parr produced from streamside incubators relative to natural-origin parr encountered in the sample. Proportions will be scaled by the estimated number of eggs planted or produced naturally, and the corresponding egg-to-hatch survival rates. Panther Creek, Indian Creek, and Morgan Creek will be monitored through snorkeling and/or electroshocking to document changes in density and dispersal (treatment effect). In addition, several unknown tributaries will also be monitored to compare differences in treatment and control tributaries. *Lytle Denny & Kurt Tardy*

1.2.6.8. Egg incubation - Same procedures and guidelines for Sawtooth and Pahsimeroi Fish Hatcheries through eyed egg stage (see Sawtooth 1.2.1.8 and Pahsimeroi 1.2.8.8.) However, once placed into in-stream upwellers, incubation will occur on stream water in the natural environment.

1.2.6.9. Juvenile fish health – Does not apply, these fish are reared on stream water in the natural environment.

1.2.6.10. Communication - Pahsimeroi FH, Sawtooth FH, and SBT personnel will coordinate to determine a schedule to obtain and transfer eyed eggs. Results and conclusions from the streamside incubation project will be presented in an annual report. *Lytle Denny*

1.2.7 Niagara Springs Fish Hatchery

IPC's mitigation goal at Niagara Springs FH is to annually produce 400,000 pounds of healthy steelhead smolts. This equates to approximately 1.8 million smolts at a mean size of 4.5 fpp. Eyed eggs (Table 12) for the program are obtained from adult returns spawned at Pahsimeroi FH and Oxbow FH. The fish are reared from eyed eggs and swimup fry to smolts at Niagara Springs FH, and released into the Pahsimeroi River below the Pahsimeroi

FH weir, into the Snake River below Hells Canyon Dam, and into the Little Salmon River at Stinky Springs or Hazard Creek. *Jerry Chapman*

1.2.7.1. Egg incubation One-half of the eggs collected at Pahsimeroi FH for IPC's mitigation program will be flown as green eggs to Oxbow FH for incubation on chilled well water to retard their rate of development. These will be shipped as swimup fry from the Oxbow FH. The other half of the Pahsimeroi eggs will be collected at the Pahsimeroi and incubated on chilled water at the Pahsimeroi FH, then shipped to Niagara Springs as eyed eggs. In addition, Niagara Springs FH will request 440,000 Oxbow-A eyed eggs and 440,000 Oxbow-A swimup fry from Oxbow FH. Eyed eggs will be shipped to Niagara Springs FH in June (at approximately 400 TUs) and placed in upwelling incubators inside the hatchery building. Swimup fry will be received in July and August (at approximately 950 TUs) and ponded directly into the outside raceways. *Jerry Chapman*

1.2.7.2. Nursery Rearing - Upon arrival at Niagara Spring FH, eyed eggs will be disinfected with Iodine at 100-ppm for 30 minutes prior to tempering and placing in upwelling incubators. Loading densities in the incubators will range from 20,000 to 55,000 eggs, depending on water availability. Incubator flows will range between 20 to 25 gpm, depending on water availability, while flows in vats will approach 50 gpm. Maximum flow indeces should not exceed 0.8 , while density indeces will peak at 1.13 lbs/ft^3/in. in the hatchery building even if we continue to only take ½ of total egg request as eggs and ½ as fry. (Swimup fry attain a density index of .57 lbs/ft^3/in when they leave the incubators for the vats.) Fry are transferred outside when they are between 1,100 and 1,300 fpp. Swimup fry will be tempered in the hauling trailer prior to ponding directly into the outside nursery raceways. Fish hatched at Niagara Springs FH from Oxbow-A eyed eggs will be transferred from indoor vats to nursery raceways 1 and 3 when they reach approximately 2,000 fpp. Oxbow-A fry will be ponded directly into nursery raceways 5 and 7 at 950 TUs. Fish hatched from Pahsimeroi-A eyed eggs and Pahsimeroi-A swimup fry will be ponded in the remaining six nursery raceways, 9 through 19, at similar sizes and TUs, respectively. Rearing space will be increased as fish grow and their density index approaches 0.30 lbs/ft^3/in. Fry will be hand-fed Rangen's dry feed in the indoor nursery areas. Hand-feeding will occur at least once per hour and will be supplemented by Zeigler belt feeders. *Jerry Chapman*

1.2.7.3. Outside rearing - Fish are reared in three banks of raceways at a maximum density index of 0.35 lbs/ft^3/in and a maximum flow index of 0.9 lbs/gpm/in. As densities increase in the nursery sections, screens are removed and fish are allowed to move down to the next screened raceway bank. Once the nursery area is lengthened to the 200-ft mark, AD-clipping begins and fish are evenly distributed into all raceways. Steelhead are fed Rangen's dry feeds throughout the early rearing period at Niagara Springs FH. Feed is dispensed by hand-feeding and supplemented with Ziegler belt feeders in the outdoor nursery areas. When fish reach 75 fpp, they are switched to Rangen's slow-sinking 470 extruded diet to allow staff to utilize two bulk tanks, a feed conveyor system, a fines separator and bridge feeders.

A length at release standard of 180 to 250 mm is established under the NOAA Fisheries 1999 Biological Opinion. The BY2008 steelhead are projected for an average size of 220 mm. This will be accomplished by holding the fish off feed and receiving eggs from later spawn dates to decrease fish size and minimize days off feed. Sample counts are performed bimonthly on representative raceways until December and then performed once per month until release. Length frequencies are checked periodically during outside rearing. Dissolved oxygen is monitored during periods of peak loading. Water temperature remains a constant 59°F. *Jerry Chapman*

1.2.7.4. Juvenile fish health - Fish health inspection and diagnostic services will be provided by personnel at the Eagle Fish Health Laboratory (EFHL). Mortality rates will be monitored and reported monthly via the written hatchery reports and through direct communication. Diagnostic services will be provided as needed at the request of hatchery personnel. Quarterly on-site inspections will include tests for the presence of replicating viruses, *Renibacterium salmoninarum* (RS) and general bacterial pathogens. A minimum of 50% of the juveniles will receive an *Aeromonas salmonicida* vaccination bath at an approximate size of 2 grams/fish. A pre-liberation inspection of fish from each stock (Pahsimeroi-A and Oxbow-A) including an organosomatic index of fish quality, will be done on all lots no more than 45 days prior to transportation. Specific pathogens tested for at pre-liberation will include IHNV, IPNV, VHSV, RS, *Aeromonas salmonicida*, *Yersinia ruckerii*, *Myxobolus cerebralis* and any other pathogens that may seem prudent at the time. *Jerry Chapman/Doug Burton/Eagle Fish Health Lab*

1.2.7.5. Planned juvenile marking & tagging, release sites - Numbers of fish marked, mark type, and release locations are established by the annual IDFG Steelhead Mark Plan (Table 2). Generally, numbers marked break out as follows: all BY2008 steelhead at Niagara Springs FH will be AD-clipped. A total of 30,000 CWTs will be implanted in Oxbow-A steelhead destined for stocking below Hells Canyon Dam and 30,000 CWT's will also be implanted into Oxbow-A fish destined for the Little Salmon River. A total of 30,000 CWTs will be implanted into Pahsimeroi-A fish destined for the Little Salmon River. Pahsimeroi-A steelhead that will be stocked back into the Pahsimeroi River will receive 60,000 CWTs. In addition, approximately 300 fish from each release site will receive PIT tags. AD-clipping and CWT tagging typically occurs the last week of September and the first two weeks of October. Marking is coordinated with Hagerman NFH, Magic Valley FH and the IDFG Marking Crew. PIT tagging typically occurs in February. Release inventories exceeding 10 percent of the allocation for the Little Salmon River drainage will be released there or retained at the hatchery for outplanting in agreed non-anadromous waters. *Jerry Chapman*

1.2.7.6. Juvenile monitoring and evaluation - The IDFG performs CWT, PIT tag and smolt-to-adult-return evaluations. PIT tags are used to evaluate juvenile migration success. No direct comparisons between groups will be made, so these tags serve largely to look at migration class success and look for gross problems with releases. CWTs will be used to measure adult contribution to fisheries, as well as evaluate total adult returns by release group. *Jerry Chapman*

1.2.7.7. Communication - Niagara Springs FH distributes monthly hatchery production summaries, monthly hatchery narratives and annual reports. These are currently not sent to the Contact list (Section 5), but are maintained at the hatchery and IDFG headquarters and are available by request. Niagara Springs FH program objectives are discussed at the Salmon River AOP, IDFG Anadromous Meetings, hatchery manager meetings and additional meetings to discuss and resolve any issues. In addition, the IPC hatchery biologist and IDFG anadromous hatcheries supervisor maintain close contact with the hatchery manager and staff for consultation as problems arise. *Jerry Chapman*

1.2.8 Pahsimeroi Fish Hatchery

IPC's mitigation goal for steelhead production at Pahsimeroi FH is to take up to 1,495,000 green eggs for distribution to Niagara Springs FH. Approximately 395 pairs of adult steelhead broodstock are needed to meet the egg take goal. Pahsimeroi FH also traps and spawns additional adult steelhead to provide eggs for the following programs (Table 12): eyed eggs for the SBT egg box program and green eggs for the LSRCP programs at Magic Valley FH and Hagerman NFH. These additional eggs require the spawning of another 352 pairs of adult steelhead to accomplish this task.

1.2.8.1. Projected adult return - Based on dam counts and check station weir count regressions the Brood Year 2008 projection is 5,310 returning adults (95.0% CI – 5,310 ±, 1,739). *Jon Hansen*

1.2.8.2. Ladder operation - Trapping will begin on February 25, 2008 and proceed through mid-May or until a period when 10 days lapse and no fish are trapped (typically this lapse occurs in mid-May). The trap will be checked for new arrivals every weekday during the run. *Todd Garlie*

1.2.8.3. Adult fish health - Adult steelhead fish health monitoring will be conducted during spawning by personnel at the EFHL. During broodstock inspections, IDFG personnel will collect ovarian fluid and kidney/spleen tissue samples to assay for viral replicating agents from at least 150 females (120 ovarian fluid samples and 30 kidney/spleen samples). Sixty kidney samples will be collected for ELISA testing for *Renibacterium salmoninarum* and 20 head wedges will be collected from returning adult steelhead and examined for *Myxobolus cerebralis*. *Doug Munson*

1.2.8.4. Adult outplanting/marking - If predicted rack numbers are higher than 1,500 fish, adult outplants occur from the early (March) trapped fish. If the predicted run size is less than the 1,500 needed for egg production, no adult out-plants will be done until 75% of the predicted run is trapped. No adult out-plants will occur prior to March 20, at which point, they will only occur if 20% of the predicted run is trapped and the daily trap numbers are increasing. Also, there will be no adult out-plants if 40% of the predicted run does not arrive prior to April 1. Surplus hatchery adults are either outplanted to predetermined locations in the main stem Salmon River for the steelhead fishery, provided to the SBT and welfare agencies for subsistence, or given to the public on spawn days. Steelhead outplanted to the mainstem Salmon River will be either opercule punched or caudal punched to identify recaptures. All unmarked adult fish are released upstream of the weir.

Genetic samples and scale samples will be collected from all natural origin steelhead released above the weir. *Todd Garlie*

1.2.8.5. Carcass disposition - Each day during spawning operations, carcasses will be given to the SBT, the public, and to charitable organizations in accordance with IDFG policy. Current charitable organizations on file at Pahsimeroi are: American Legion, Challis Operation Helping Hands, Eastern Idaho Special Services (Idaho Falls and Salmon), and the Idaho Food Bank.

IDFG policy does not allow disposal of steelhead carcasses into the Pahsimeroi River to supplement marine derived nutrients. This is because some adult steelhead are whirling disease carriers, which may increase the density of the whirling disease causative agent. Fish that are non-edible are placed in a refrigeration unit and hauled to a rendering plant. The refrigeration unit is rented. *Todd Garlie/Doug Engemann/Paul Abbott*

1.2.8.6. Adult monitoring and evaluation - To assess the utility of genetic parentage based analysis, tissue samples will be collected from every individual adipose fin clipped fish used for broodstock in 2008. Genetic samples will also be collected from all trapped unmarked steelhead. All adult steelhead with tags and marks will be retained after spawning to recover CWTs (if present) and all relevant information for input into the IDFG anadromous database. *Carl Stiefel*

1.2.8.7. Spawning/egg take plans, mating protocol - Adult steelhead that are trapped and ready to spawn after March 24 will be used for primary egg production needs. Niagara Springs FH, Magic Valley FH ,Hagerman National FH, and the SBT egg box program A random cross section of the run will be used to maximize the genetic diversity and to maintain a wide run and spawn period.

Selecting spawners – Ripe steelhead that enter the Pahsimeroi FH trap on spawn days will be spawned first to collect eggs for production facilities. Then, previously trapped fish will be sorted and ripe fish will be spawned. Eggs from fish spawned after April 1 will be distributed to production facilities and eggs from fish spawned prior to April 1 will be distributed as surplus eggs to secondary programs based on priority and needs. In an effort to obtain eggs from adults returning later in the run for Niagara Springs FH, to meet production needs and to shift the steelhead run and spawn timing towards historical levels, all eggs collected in May will be used exclusively for Niagara Springs FH production. Furthermore, no more than 10 percent of the eggs distributed to Niagara Springs FH should come from steelhead spawned in March.

Procedures for spawning - After sorting the trap and female holding pond, males will be collected from holding in equal numbers to the ripe females. The ripe females will then be killed in groups of ten by the SI-5 stunner. Each female will be individually incised and eggs will be collected in a colander, allowing excess ovarian fluid to drain off. The drained eggs will be placed in a bucket and fertilized by one male (one X one cross). The sperm will be expressed directly into the bucket of eggs. Females with poor eggs or bloody ovarian fluid will not be used for production. Males that expel bloody or watery sperm will

not be used. . Tissue samples for DNA analysis will be collected from all fish spawned for production purposes.

Egg Take Plans - - Current plans are to take eggs for Niagara Springs FH 1,104,000 eyed-egg/fry (395 females), the Shoshone-Bannock Tribal egg box program, 500,000 eyed-eggs (144 females), Magic Valley Hatchery 475,000 eyed-eggs (135 females), and Hagerman National Hatchery 215,000 eyed-eggs (72 females). PFH personnel will also collect 700,000 surplus eyed-eggs (320 females) to protect against a catastrophic loss at other facilities. If no losses occur necessitating the use of the surplus eggs, they may be used for resident trout egg requests, fry production, or destroyed pending Fisheries Bureau approval.

1.2.8.8. Egg incubation - In 2008 eggs collected for Niagara Springs Fish Hatchery and the Shoshone-Bannock Tribal egg box program will be incubated on chilled water (42F) at the new Upper Pahsimeroi Fish Hatchery. Eggs incubated for Niagara Springs Fish Hatchery will sent to NSFH as eyed eggs and swim-up fry. In the event that the chiller for the new Upper Pahsimeroi Hatchery isn't functional for incubating eggs, all eggs for NSFH will be sent as green eggs to Oxbow Hatchery for incubation. Eggs for the SBT egg box program will be incubated to the eyed stage at Upper PFH and picked up by SBT personnel. Eggs for Magic Valley Hatchery and Hagerman National Hatchery will be collected by Pahsimeroi Hatchery personnel and sent to Sawtooth Fish Hatchery as green eggs. SFH personnel will pick up these eggs on spawn days. These eggs are placed into aqua seed tubes, then into coolers of well water. Ice is added to the coolers to temper the eggs back to 40°F during transport. Once the eggs have eyed, they will be shocked twice from a distance of 18 inches into a dish pan with 2 inches of water. The eggs will be placed back into the incubator trays and picked and enumerated the following days using a Jensorter electronic picker/counter. *Todd Garlie*

Eggs collected for incubation at Upper PFH will be watered hardened in a 100ppm solution of Argentyne at the Lower PFH, placed in aquaseed tubes, then into coolers of well water and transferred to the new Upper PFH. Once eggs are received at the new Upper PFH, egg coolers will be disinfected externally with Argentyne at 100ppm for 30 minutes. Also, the eggs will be disinfected with Argentyne at 100ppm for 30 minutes. Once the eggs are disinfected, they will be tempered from 55F water to 42F water then placed into incubation trays. Incubator trays will be loaded at the rate of 1 female's eggs per tray (10K). Forty-eight hours after collection until eye-up, all eggs incubated at Pahsimeroi receive 1,667 ppm fifteen minute formalin treatments administered every other day. These treatments are alternated with 500 milliliter iodophor flush treatments administered on non-formalin treatment days to preempt potential soft shell disease loss. Once the eggs are eyed, they are enumerated and picked using a Jensorter electronic picker/counter. *Todd Garlie*

1.2.8.9. Juvenile fish health – No juvenile steelhead are reared at this location. See section 1.2.7.4 for details for juvenile fish health plans at Niagara Springs FH. *Doug Munson/Todd Garlie*

1.2.8.10. Communication - Pahsimeroi FH distributes trapping and spawning updates three times per week during the steelhead run. These data summaries are provided electronically

to individuals on a distribution list. Daily steelhead trapping updates are entered on the department K-drive every weekday throughout the run. Records of adult outplants will be uploaded to the Department fish release database as they occur. SBT personnel will coordinate to determine a schedule to obtain and transfer eyed eggs. *Todd Garlie/Doug Engemann/Paul Abbott*

1.2.9 Oxbow Hatchery Fish Hatchery

Idaho Power Company's current mitigation goal for steelhead production at Oxbow FH is to trap and spawn a sufficient number of adult steelhead to allow for the production of 200,000 lbs of steelhead smolts at Niagara Springs FH. To produce the minimum 1.2 million eyed-eggs/ fry necessary to reach that goal, approximately 550 adult steelhead are trapped in the fall and held over winter. An additional 50 females or 10% of the broodstock are trapped the following spring. This provides for pre-spawning mortality, culling for disease management and manipulation of run timing. It will also provides a small surplus for use at Pahsimeroi FH and Sawtooth FH in the event that returns to their weirs do not meet production goals Steelhead spawning occurs in the spring and the resulting eggs and swim up fry are transferred to Niagara Springs FH beginning in June.

1.2.9.1. Projected adult return - As of December 1 2007, Oxbow FH has a total of 600 adult A-run steelhead (269 males and 331 females) on station for BY2008 production. Additional trapping is scheduled to commence in the March 2008. The 2008 steelhead run projection is not available at this time. *Kent Hills/Ralph Steiner*

1.2.9.2. Ladder operation - Fall trapping at the Hells Canyon Trap extended from October 29 to November 26, 2007. The trap operated for three days in October and nine days in November. Trapping in the spring is influenced by flow in the Snake River and the resulting releases from Hells Canyon Dam. Flows in excess of 50,000 cfs at Hells Canyon Dam require cessation of trapping because the trap is inundated. At this time, spring trapping is scheduled to begin in March 2008 and will continue into April or until the broodstock target (10% of the females) is reached. *Kent Hills/Ralph Steiner*

1.2.9.3. Adult fish health - Adult steelhead monitoring will be conducted during spawning by personnel at the EFHL. During broodstock inspections, IDFG personnel will collect ovarian fluid and kidney/spleen tissue samples to assay for viral replicating agents from at least 150 females (120 ovarian fluid samples and 30 kidney/spleen samples). Sixty kidney samples will be collected for ELISA testing for *Renibacterium salmoninarum* and 20 head wedges will be collected from returning adult steelhead and examined for *Myxobolus cerebralis*. *Doug Munson*

1.2.9.4. Adult outplanting/marking – Depending on run strength, surplus adults may be trapped at Hells Canyon Trap. Surplus fish are distributed to Idaho, Oregon, and the Nez Perce Tribe. In the fall of 2007, the Nez Perce Tribe received 1,001 fish for subsistence/consumption. The Idaho and Oregon shares were released to supplement sport fisheries and received a left operculum punch. Idaho received 1,000 fish, which were released into the Boise River. Oregon received 1,000, which were released into Hells

Canyon Reservoir. Additional out-plants may take place at agreed upon locations if excess fish are trapped in the spring of 2008. *Kent Hills/Ralph Steiner*

1.2.9.5. Carcass disposition - Carcasses will be placed into a garbage dumpster and picked up weekly by the local sanitation company. They will be transported to the Halfway transfer station and eventually to an approved ODEQ landfill. Another option is now available through the Mitigation of Nutrient Driven Marine project headed up by Gregg Servheen and Lance Hebdon of IDFG. Carcasses for this study are picked up and frozen until such time they are turned into analogs for use in various streams studies on the effect of marine nutrient enhancement. This option is being studied for logistic needs and ability to store the carcasses. *Kent Hills/Ralph Steiner*

1.2.9.6. Adult monitoring and evaluation - All returning adult steelhead are scanned for CWTs and PIT tags. They are also scrutinized for other marks, tags, and injuries. *Kent Hills/Ralph Steiner*

1.2.9.7. Spawning/egg take plans, mating protocols - Spawning will occur twice each week. Eggs will be drained of ovarian fluid and fertilized with milt from two males. Females with poor egg quality or bloody ovarian fluid will not be used for production. Males that expel bloody or watery milt will not be used. Fertilized eggs from two females will then be combined for water hardening. *Kent Hills*

1.2.9.8. Egg incubation - Eggs will be incubated at regulated well water temperatures ranging from 53ºF to 42ºF to consolidate egg shipments to Niagara Spring FH. The incubation program at Oxbow FH may change following construction of new facilities at Pahsimeroi FH. As of December 2007 the most recent information is that incubation of Pahsimeroi eggs at Oxbow FH will continue. In addition to eggs collected at Oxbow FH, approximately 1,250,000 green eggs will be transferred from Pahsimeroi FH to Oxbow FH beginning in March. All eggs will receive a daily iodophore flush. Both Oxbow-A and Pahsimeroi-A eggs will be reared to the eyed egg or fry stage and then transferred to Niagara Springs FH or distributed as directed by the IDFG Fisheries Bureau. The 2008 egg request for Pahsimeroi-A steelhead is for 1,104,000 eyed eggs and fry. This will include 552,000 eyed eggs and 552,000 swim-up fry to be transferred to Niagara Springs FH. Surplus eggs or fry may be transferred to Hagerman State FH or reared to the fry stage and released into Cascade Reservoir. Eyed eggs are transported in coolers and button-up fry are placed inside large screened tubes, loaded onto a tank trailer or tank truck, and transported to the rearing facility or reservoir for release. *Kent Hills/Ralph Steiner*

1.2.9.9. Juvenile fish health – Juvenile steelhead are not reared at Oxbow FH. See section 1.2.7.4 for details for juvenile fish health plans at Niagara Springs FH. *Doug Munson*

1.2.9.10. Communication - During steelhead trapping, Hells Canyon Trap data will be uploaded daily to the IDFG trap record for each day the trap is operated. Adult releases will be uploaded to the IDFG release database at least weekly. In addition, weekly trap updates will be sent to the IPC hatchery biologist. *Kent Hills/Ralph Steiner*

2. Chinook Salmon

Chinook salmon *Oncorynchus tshawytscha* are native to the Columbia River drainage and spawn in fresh water during the summer and fall months. Idaho's Chinook enter the fresh water system the same year they spawn, usually beginning in spring of each year, spawning begins in August and continues as late as November. Spring, Summer, and Fall Chinook are designated by timing entering the Columbia River system.

2.1 Brood Year 2003 Chinook Salmon

2.1.1 Eagle Fish Hatchery

Approximately 600 eyed eggs are needed to meet adult release production goals for the Eagle Hatchery Spring Chinook salmon captive rearing program. This number represents eyed-egg collection from two Salmon River drainages (300 eyed eggs from the East Fork Salmon River and 300 eyed eggs from the West Fork Yankee Fork). Adult release goals are to release a minimum of 20 pairs of age-3 through age-5 mature Chinook salmon to each drainage annually.

2.1.1.1. Production status - NOAA Fisheries currently has 25 WFYF and 13 EFSR spring Chinook salmon in production at Manchester Research Station (saltwater rearing). Typically all remaining age-5 fish mature. *Carlin McAuley/Dan Baker*

2.1.1.2. Projected release - Approximately 25 WFYF and 13 EFSR spring Chinook salmon will mature at age-5 and be transferred to Eagle FH in May. These groups will be held at Eagle FH until they are released into natal drainages in August of 2008. Due to facility construction, mature Chinook salmon will be returned to Idaho in early July and released directly to natal streams. *Dan Baker*

2.1.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish sampling does not occur prior to transporting juveniles from Eagle FH to the NOAA Fisheries facility in Washington State. However, all fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, spring Chinook salmon have remained relatively disease free for the freshwater portion of their rearing history (the Eagle FH component). Age-1 Chinook salmon are vaccinated prior to shipment to saltwater with intra-peritoneal injections of Vibrogen (Aqua Health, Ltd., Charlottown, P.E.I., Canada) to prevent Vibrio spp. and Renogen (Aqua Health Ltd.) to prevent BKD. *Doug Munson/Mark Peterson*

2.1.1.4. Monitoring and evaluation - All juveniles are PIT tagged to track individual fish through hatchery culture. All juveniles received a VIE mark used to visually identify stock and rearing strategy. Before maturing adults are released all Chinook salmon receive an externally visible tag (Petersen Disc tag, Floy tag, or jaw tag) to assist with post-release spawning behavior observations. *Dmitri Vidergar/Paul Kline*

2.1.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Chinook Salmon Captive Propagation Technical Oversight Committee

(CSCPTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Dimitri Vidergar/Carlin McAuley*

2.2 Brood Year 2004 Chinook Salmon

2.2.1 Eagle Fish Hatchery

Approximately 600 eyed eggs are needed to meet adult release production goals for the Eagle Hatchery Spring Chinook salmon captive rearing program. This number represents eyed-egg collection from two Salmon River drainages (300 eyed eggs from the East Fork Salmon River and 300 eyed eggs from the West Fork Yankee Fork). Adult release goals are to release a minimum of 20 pairs of age-3 through age-5 mature Chinook salmon to each drainage annually.

2.2.1.1. Production status - NOAA Fisheries currently has 111 WFYF and 148 EFSR spring Chinook salmon in production at Manchester Research Station (saltwater rearing). Approximately 90% will mature at age-4. *Carlin McAuley/Dan Baker*

2.2.1.2. Projected release - Approximately 90 WFYF and 125 EFSR spring Chinook salmon will mature at age-4 and be transferred to Eagle FH in May. These groups will be held at Eagle FH until they are released into natal drainages in August of 2007. Due to facility construction, mature Chinook salmon will be returned to Idaho in early July and released directly to natal streams. *Dan Baker*

2.2.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish sampling does not occur prior to transporting juveniles from Eagle FH to the NOAA Fisheries facility in Washington State. However, all fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, spring Chinook salmon have remained relatively disease free for the freshwater portion of their rearing history (the Eagle FH component). Age-1 Chinook salmon are vaccinated prior to shipment to saltwater with intra-peritoneal injections of Vibrogen (Aqua Health, Ltd., Charlottown, P.E.I., Canada) to prevent Vibrio spp. and Renogen (Aqua Health Ltd.) to prevent BKD. *Doug Munson/Mark Peterson*

2.2.1.4. Monitoring and evaluation - All juveniles are PIT tagged to track individual fish through hatchery culture. All juveniles received a VIE mark used to visually identify stock and rearing strategy. Before maturing adults are released all Chinook salmon receive an externally visible tag (Petersen Disc tag, Floy tag, or jaw tag) to assist with post-release spawning behavior observations. *Dmitri Vidergar/Paul Kline*

2.2.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Chinook Salmon Captive Propagation Technical Oversight Committee (CSCPTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Dmitri Vidergar/Carlin McAuley*

2.3 Brood Year 2005 Chinook Salmon

2.3.1 Eagle Fish Hatchery

Approximately 600 eyed eggs are needed to meet Adult Release production goals for the Eagle Hatchery Spring Chinook salmon captive rearing program. This number represents eyed-egg collection from two Salmon River drainages (300 eyed eggs from the East Fork Salmon River and 300 eyed eggs from the West Fork Yankee Fork). Adult release goals are to release a minimum of 20 pairs Chinook (age-3 through age-5) to each drainage annually.

2.3.1.1. Production status - NOAA Fisheries currently has 237 WFYF and 212 EFSR spring Chinook salmon in production at Manchester Research Station (saltwater rearing). Approximately 30% will mature at age-3. *Carlin McAuley/Dan Baker*

2.3.1.2. Projected release - Approximately 71 WFYF and 63 EFSR spring Chinook salmon will mature at age-3 and be transferred to Eagle FH in May. These groups will be held at Eagle FH and until they are released into natal drainages in August of 2008. Due to facility construction, mature Chinook salmon will be returned to Idaho in early July and released directly to natal streams. *Dan Baker*

2.3.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish sampling does not occur prior to transporting juveniles from Eagle FH to the NOAA Fisheries facility in Washington State. However, all fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, spring Chinook salmon have remained relatively disease free for the freshwater portion of their rearing history (the Eagle FH component). Age-1 Chinook salmon are vaccinated prior to shipment to saltwater with intra-peritoneal injections of Vibrogen (Aqua Health, Ltd., Charlottown, P.E.I., Canada) to prevent Vibrio spp. and Renogen (Aqua Health Ltd.) to prevent BKD. *Doug Munson/Mark Peterson*

2.3.1.4. Monitoring and evaluation - All juveniles are PIT tagged to track individual fish through hatchery culture. All juveniles received a VIE mark used to visually identify stock and rearing strategy. Before maturing adults are released all Chinook salmon receive an externally visible tag (Petersen Disc tag, Floy tag, or jaw tag) to assist with post-release spawning behavior observations. *Dan Baker/Jeff Heindel*

2.3.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Chinook Salmon Captive Propagation Technical Oversight Committee (CSCPTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Jeff Heindel/Carlin McAuley*

2.4 Brood Year 2006 Chinook Salmon

2.4.1 Sawtooth Fish Hatchery

The LSRCP has a mitigation goal to provide adult returns of 19,445 adult Chinook above Lower Granite Dam annually. The SFH was constructed from 1983-1985 and began operations in 1985 to contribute to this adult spring Chinook salmon goal to return 11,310 to the SFH, 6,090 to the East Fork Salmon River and 2,045 to Valley Creek (based on a

SAR of 0.87%). The original production design for SFH was for 2.3 million smolts including 1.3 million smolts in the Salmon River at SFH, 700,000 for the East Fork Salmon River and 300,000 smolts released in Valley Creek. The Valley Creek component of the program has never been pursued and the East Fork Salmon River component was changed in 1998 to a natural production program. Approximately, 350 females and 350 males are needed for broodstock for the SFH spring Chinook salmon program. This number includes jacks and accounts for pre-spawning mortality. This brood level will provide 1.5 million green eggs at 4,300 egg fecundity and 1.3 million smolts at an average of 88% eyed egg-to-smolt survival to meet the SFH component. An additional 250 pairs are required to reach the original production design of 2.3 million smolts Currently, SFH has sufficient specific, pathogen-free water to rear 450,000 parr to 7 cm target size prior to transfer to final rearing on raw river water.

Brood Fish Health- Prespawning mortality was recorded at 51% due to *Ichthyophthirius multifilis*, while ELISA samples detected *Renibacterium* in 5.8% (3/52) above 0.25. Eggs from females with optical densities above 0.25 (highest 0.34) were not culled and will be reared as a high BKD segregation group. *Myxobolus cerebralis* was not detected. IHNV was detected in 15 of 150 (10%) fish sampled. *Doug Munson*

2.4.1.1. Production status - On January 2, 2008, there were 174,481 BY2006 spring Chinook averaging 21 fpp and 138 mm (5.45 inches) in length being reared in two outside raceways. These fish are doing well and will meet size-at-release requirements of 16-21 fpp. *Brent Snider*

2.4.1.2. Outside rearing - Final rearing takes place in one of fourteen outside raceways. These raceways are supplied with raw, river water. The target Density Index and flow index at Release are 0.15-0.20 and 1.0 – 1.6 respectively. At release the smolts are crowded into the connected raceway tailrace then crowded from the tailrace to the Salmon River via a buried 24 inch pipeline. *Brent Snider*

2.4.1.3. Monitoring and evaluation - Standard protocol is to sample count at least monthly for growth monitoring during their rearing cycle, and approximately one week before release. Length frequencies and condition factors will be determined from a representative sample prior to release. A CWT retention check will be completed before release. IDFG research personnel will PIT 15,000 fish, early-March of 2008, and monitor PIT tag detection at dams. *Brian Leth*

2.4.1.4. Juvenile fish health - - Chinook salmon reared at this facility were inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. The preliberation sample consisted of 20 randomly collected fish and examined for *Renibacterium salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index was also performed on these fish. These samples were taken within 45 days prior to release. Two metaphylactic feedings of erythromycin-medicated feed were applied to juveniles with a target dose of 100 mg/kg for 28 days. Diagnostic examinations were provided on demand by EFHL. To date *Aeromonas*

hydrophila and *Ichthyophthirius multifilis* are the only pathogens detected during EFHL examinations in BY'06 spring Chinook salmon. *Doug Munson/Brent Snider*

2.4.1.5. Projected release - Spring Chinook smolts will be released in mid-April of 2008. Tail screens will be removed with the fish released into the river through the tailrace pipe. Expected number at release is 174,000 at 20 fpp. *Brent Snider*

2.4.1.6. Excess production strategies - No excess projected. *Brent Snider*

2.4.1.7. Transportation strategies - None. *Brent Snider*

2.4.1.8. Communication - Monthly hatchery narrative reports are available to all requesting to be included on the distribution list. A summary run report, Annual Operation and Maintenance report and final Brood Year report available after completion and upon request. *Brent Snider*

2.4.2 McCall Fish Hatchery

McCall FH requires 1,360 returning SFSR summer chinook to support program release objectives of 300,000 eyed eggs for SBT Dollar Creek in-stream incubator boxes and a 1.0 million hatchery smolt release at Knox Bridge on the South Fork Salmon River. Typically, 454 females and 906 males (including 36 jacks) need to be ponded as broodstock. On average this should allow for spawning of 385 females given an average pre-spawning mortality rate of 15%. Assuming a BKD High culling rate of 5% and an average fecundity of 4,300 eggs per female would provide a total of 1,338,000 eyed eggs. A rearing mortality rate of 3%, post-eye, at MCFH would allow for a goal release of 1,000,000 smolts. Overall, MCFH's adult return goal is 8,000 SFSR summer Chinook above Lower Granite Dam. Additionally, MCFH rears up to 100,000 Johnson Creek origin summer Chinook salmon, to smolt, annually.

Brood Fish Health- Prespawning mortality was recorded at 6%, while ELISA samples detected *Renibacterium* in 2% (9/452) above 0.25. *Myxobolus cerebralis* was not detected. IHNV was detected in 3 of 90 (3.3%) fish sampled. *Doug Munson*

2.4.2.1. Production status - As of December 10, 2007 there were 1,062,473 BY2006 reserve summer Chinook (808,769 Ad-clip only, 253,704 Ad-clip/ CWT) at an average size of 21.0 fpp (5.30 inches TL) being reared at McCall FH. Fish marking has been completed for adipose fin clips and coded-wire-tags. Approximately 52,000 presmolts will be PIT tagged in February 2008. *Gene McPherson/Steve Kammeyer*

2.4.2.2 Outside rearing - Final rearing takes place in one of two outdoor rearing ponds which are partially covered to allow for natural light penetration. At time of release density and flow indices are projected as 0.24 and 1.78, respectively. These ponds are connected to a collection basin where fish will be crowded into for loading onto transport trucks for release. *Gene McPherson/Steve Kammeyer*

2.4.2.3. Monitoring and evaluation - Prior to release, hatchery personnel will sample 300 fish from each pond to evaluate Ad-clip mark quality and to determine fish size (total length and fish per pound). Due to mixed rearing conditions no retentions checks for CWT or PIT tags will be made. *Gene McPherson/Steve Kammeyer*

The Nez Perce Tribe is operating a PIT tag array below the juvenile release site in the upper mainstem South Fork Salmon River (river kilometer 522.303.215.65) to help evaluate the survival of the juvenile releases out of the SFSR and survival back as adults. This PIT tag array will also help provide real time estimates of adults into the SFSR and help evaluate natural and hatchery composition. Please contact Nez Perce Tribe personnel if the release date schedule changes. *Bill Young/Jason Vogel*.

2.4.2.4. Juvenile fish health - Chinook salmon reared at this facility were inspected by EFHL personnel on a quarterly basis for *R. salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. Diagnostic services are provided upon request. The preliberation sample consisted of 20 randomly collected fish and examined for *R. salmoninarum, Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index was also being performed on these fish. The preliberation sample was performed within 45 days of release. One metaphylactic treatment of erythromycin medicated feed was applied to one half of the BY'06 South Fork summer Chinook population at this facility. *Doug Munson/Gene McPherson*

2.4.2.5. Projected release – In March 2008 it is projected that a release group of 1,061,000 Ad-clipped SFSR Reserve summer Chinook smolts will be available. Anticipated mark groups to be released include: 755,500 ad-clip only, 253,500 ad-clip/ CWT, and 52,000 ad-clip/ PIT. Growth projections indicate these fish will be released at an approximate size of 18.5 fpp. Release of these smolts is tentatively scheduled to occur March 17-21, 2008. *Gene McPherson/Steve Kammeyer*

2.4.2.6. Excess production strategies - All smolts from BY2006 are scheduled to be released into the SFSR at Knox Bridge. Prior to hatching 168,252 eyed eggs (from 46 females) were culled from hatchery production. Eggs culled came from incubation trays where one of the contributing females demonstrated elevated Low Positive ELISA optical densities of 0.165-0.249. *Gene McPherson/Steve Kammeyer*

2.4.2.7. Transportation strategies- The McCall FH LSRCP transport truck, new McCall FH adult transport truck, McCall FH resident 2-Ton transport truck and two resident transport trucks (from Nampa FH) will be utilized to move salmon smolts to the SFSR release site at Knox Bridge. Approximately 8,500 pounds of fish will be transported for each release and 2 release trips are scheduled to take place each day. At Knox Bridge, water from the SFSR will be pumped onto the trucks to provide tempering prior to release. Release will take place using a transfer tube stretching from the roadway to the river. Johnson Creek origin summer Chinook smolts need to be completely transported to empty the hatchery collection basin before SFSR SU transportation can begin. *Gene McPherson/Steve Kammeyer*

2.4.2.8. Communication - Prior to initiation of transportation activities the MCFH hatchery manager will contact the Valley County Road Department to notify them of the hatcheries hauling schedule to ensure the Warm Lake road plowing crews are aware of our presence. The MCFH hatchery manager will also contact McCall field offices of the IDFG and NPT, prior to releases, so they will be aware of the hatcheries release schedule and the operation of fish sampling screw-traps can be suspended. *Gene McPherson/Steve Kammeyer*

2.4.3 Johnson Creek

The goal of the Johnson Creek Artificial Propagation Enhancement (JCAPE) project is to reduce the demographic risk of extirpation of the ESA listed Johnson Creek summer Chinook salmon and begin its recovery through supplementation. A secondary goal is to maintain genetic diversity of the artificially propagated summer Chinook salmon population and the natural population. The intent is to increase adult returns through increased juvenile survival and improved homing in order to preserve and recover the Johnson Creek salmon population.

Supplementation (O&M) Goal: Conduct necessary operations to produce 100,000 smolts annually for release back into Johnson Creek. In order to meet this supplementation goal, up to 40 pairs of natural origin adults are needed to produce 100,000 smolts annually.

Monitoring and Evaluation (M&E) Goal: Establish baseline information on the Johnson Creek summer Chinook salmon population. Monitor and evaluate the effectiveness of supplementation to aid in the recovery of the natural population of Johnson Creek summer Chinook salmon.

2.4.3.1. Production status - As of January 1, 2008 there were 88,238 BY06 Johnson Creek origin supplementation summer Chinook at an average size of 27.9 fpp (4.82 inches TL) being reared at McCall FH. In March 2008 it is projected that a release group of 88,000 summer Chinook will be available. Growth projections indicate these fish will be released at a size of 24.5 fpp. *John Gebhards*

2.4.3.2. Outside rearing - The BY06 Johnson Creek fish are currently being reared in the outside collection basin at the McCall Fish Hatchery. *John Gebhards*

2.4.3.3. Juvenile monitoring and evaluation - The JCAPE project is integrated with a comprehensive M&E program that follows a detailed M&E Plan (Vogel et al. 2005). The monitoring and evaluation program quantifies 41 regionally standardized performance measures to evaluate the supplementation program. These standard performance measures help inform decisions on Abundance, Survival-Productivity, Distribution, Genetic, Life History, and Habitat. The evaluation plan utilizes comparative performance tests at multiple life stages and involves treatment vs natural experients and repeated meaure desings (treatment vs reference). This program, initiated prior to the first releases of supplemented fish, has been collecting baseline life-history characteristic information, to examine survival of the wild fish in Johnson Creek and any potential effects that the supplementation program may have on the natural population.

The Johnson Creek broodyear 2006 smolts have been 100 % CWT and 100% VIE (Right eye green) tagged. In addition, 12,009 of these fish were PIT tagged in January 2008. During tagging, all smolts PIT tagged were checked for CWT and VIE tag retention. Of the 12,158 fish that were checked, 96.65% retained both the CWT and VIE tag. Individual retention of marks differed slightly; CWT retention was 98.61% versus the VIE tag which was 97.22%. Virtually all (99.99%) fish examined retained at least one of the two tags. *John Gebhards/Craig Rabe*

2.4.3.4. Juvenile fish health - These fish were reared at McCall FH. Diagnostic services are available upon request. The pre-liberation sample consisted of 20 randomly collected fish and examined for *R. salmoninarum, M. cerebralis*, and viral replicating agents. Goede's organosomatic index was also performed on these fish. The preliberation sample was performed within 45 days of release. Juvenile salmon received one metaphylactic feeding of erythromycin medicated feed at a target dose of 100 mg/kg/day for 28 days. *John Gebhards/Doug Munson*

2.4.3.5. Projected release - The JCAPE project will be releasing approximately 88,000 smolts back into Johnson Creek. Release of these smolts is tentatively scheduled for March 10-14, 2008. These fish will be directly released into Johnson Creek into the pool located below the Wapiti Ranch bridge. No attempts will be made to acclimate these fish at the time of release. *John Gebhards*

2.4.3.6. Excess production strategies - There are no excess fish from this brood year. *John Gebhards*

2.4.3.7. Transportation strategies - Johnson Creek summer Chinook being reared in the collection basin will be crowded to one side using a screen and then be hand-netted onto awaiting trucks by NPT fisheries personnel. The NPT will provide personnel and three or four 1-ton 4x4 trucks with 300 – 400 gallon tanks for transporting smolts to Johnson Creek near Wapiti Ranch for release. One release trip (3 to 4 trucks per trip) is planned for each day. Release of these smolts is tentatively scheduled for March 10-14, 2008. *John Gebhards*

2.4.3.8. Communication - The JCAPE project is responsible for preparing annual brood year reports that are submitted to both NOAA Fisheries and BPA. These reports are not currently sent to the contact list (Section 5), but are available upon request or through BPA's website or from the JCAPE project staff. *John Gebhards*

2.4.4 Pahsimeroi Fish Hatchery

The mitigation goal for Pahsimeroi FH is to release up to 1,000,000 Summer Chinook smolts annually into the Pahsimeroi River. Approximately 300 pair of adult Summer Chinook are required to meet this mitigation when considering prespawning mortality and culling of disease positive adults.

Brood Fish Health- Prespawning mortality was recorded at 5%, while ELISA samples detected *Renibacterium* in 12% (41/344) above 0.25. Viral replicating agents were not

detected in a 60 fish sample. *Myxobolus cerebralis* was detected in 3 of 20 fish (15%) sampled. *Doug Munson*

2.4.4.1. Production status - On January 1, 2008 there were 1,039,442 BY2006 listed summer Chinook on station. These fish averaged 18 fpp (5.50 inches). *Todd Garlie/Doug Engemann*

2.4.4.2. Outside rearing All BY2006 summer Chinook pre-smolts are currently in our new outdoor rearing ponds. All BY2006 summer Chinook pre-smolts were early reared at Sawtooth Fish Hatchery. Transfer back to Upper Pahsimeroi FH from Sawtooth FH occurred on September 11 and 12, 2007. *Todd Garlie/Brent Snider*

2.4.4.3. Juvenile monitoring and evaluation - All BY2006 Pahsimeroi FH summer Chinook were adipose clipped. Additionally, a sub-sample of fish received Coded Wire Tags for SAR/exploitation information. A total of 15,000 fish will receive PIT tags in February, 2008 to estimate juvenile survival to Lower Granite Dam and to evaluate adult returns back to Lower Granite Dam. *Todd Garlie/Doug Engemann/Rodney Duke/Brian Leth*

2.4.4.4. Juvenile fish health - Chinook salmon reared at this facility were inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas* and *Flavobacterium psychrophilum*. Diagnostic services were provided upon request. Two metaphylactic treatments of erythromycin medicated feed were applied to this brood year for control of Renibacterium. The preliberation sample consisted of 20 randomly collected fish and examined for *R. salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index was performed on these fish. The preliberation sample was performed within 45 days of release. *Doug Munson*

2.4.4.5. Projected release - An estimated 1,038,000 smolts will be released volitionally beginning April 15, 2008. The releases from rearing pond 1 and rearing pond 2 will be staggered to avoid overwhelming the smolt bypass structures in the Pahsimeroi River. Smolts will be allowed 14 days in which to migrate from the ponds. The target size at fish release is 15 fpp for this brood year 2006. *Todd Garlie/Doug Engemann*

2.4.4.6. Excess production strategies - None this brood year.

2.4.4.7. Transportation strategies - None, direct release.

2.4.4.8. Communication - Pahsimeroi Hatchery provides monthly inventory summaries to an electronic distribution list which includes IDFG fisheries bureau personnel, LSRCP personnel, and IPC fisheries personnel. *Todd Garlie/Brent Snider*

2.4.5 Rapid River Fish Hatchery

Approximately, 2,500 Chinook are needed annually for broodstock for the Rapid River FH spring Chinook salmon program. This number includes jacks and accounts for pre-

spawning mortality at the 20-year average as well as average female culling required by disease management constraints and average fecundity. This brood level will provide 3.4 million green eggs and 3.0 million smolts at an average of 88% eyed egg-to-smolt survival to meet the smolt release goals.

Brood Fish Health- Prespawning mortality was recorded at 5.1%, while ELISA samples detected *Renibacterium* in 3.4% (39/1294) above 0.249. Viral replicating agents and *Myxobolus cerebralis* were not detected. *Doug Munson*

2.4.5.1. Production status - As of January 15, 2008 Rapid River FH has 3.2 million BY2006 spring Chinook on station (135 mm average total length, 20.3 fpp). *Ralph Steiner*

2.4.5.2. Outside rearing - Outside rearing takes place in two stages. For initial rearing, fry are moved from vertical stack incubators to eleven outside raceways. Density and flow indices were 0.62 and 1.52, respectively in mid June 2007 when the fingerlings were marked and moved to the final rearing ponds. Final rearing continues in the rearing ponds until release, will be scheduled March 10 and extend to April 25, 2008. Final rearing density and flow indices are projected to average 0.22 lb/ft^3/in and 2.25 lb/gpm/in respectively at the beginning of release. During release some smolts are collected using a seine and loaded onto transport trucks for release at the designated remote locations. The remaining fish will be volitionally released into Rapid River. *Ralph Steiner*

2.4.5.3. Juvenile monitoring and evaluation - The fish are sampled biweekly for weight. Samples are comprised of at least 300 fish/rearing unit. At the end of each month, 60 fish sub-samples are measured to determine average total length and condition factor. Starting the month marking was completed and continuing until release, a quality check of AD-clips is performed on the sub-samples and fish are categorized as full-clip, partial-clip, or no-clip. The BY2006 marking included 100% AD, and 112, 331 CWT which were completed June 2007. In addition, 52, 000 PIT-tags will be implanted by IDFG starting February 4, 2008 and starting February 7th, 66, 000 will be implanted by Biomark for USACE. *Ralph Steiner*

2.4.5.4. Juvenile fish health - Chinook salmon reared at this facility were inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas* and *Flavobacterium psychrophilum*. Diagnostic services were provided upon request. The liberation sample consisted of 20 randomly collected fish and examined for *R. salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index was performed on these fish. The preliberation sample was performed within 45 days of release. Two metaphlactic treatments of erythromycin-medicated feed were applied to juveniles with a target dose of 100 mg/kg for 28 days to control BKD. *Doug Munson*

2.4.5.5. Projected release - Fish will be released at the designated release sites the week of March 10, 2008. Transport will take place in oxygenated Rapid River water at a density of 0.5 lbs/gallon. Four-hundred ninety thousand smolts will be released in Hells Canyon, 200,000 will be released into the Little Salmon River, and the remaining 2.5 million smolts

will be released volitionally from Rapid River FH directly into Rapid River during March and April 2008. The target size is 20 fpp at release. *Ralph Steiner*

2.4.5.6. Excess production strategies - Current inventory precludes excess production. *Ralph Steiner*

2.4.5.7. Transportation – IPC tanker trucks will transport smolts for release at the USFS boat ramp below Hells Canyon Dam and Pinehurst Bridge on Little Salmon River. Transport will take place in oxygenated Rapid River water at a loading density of 0.5 lbs/gallon. Additional releases at agreed to locations shall be transported under the same conditions should alternate sites be designated. *Ralph Steiner*

2.4.5.8. Communication - Release groups will be reported to the IDFG Fisheries Bureau via annual Marked Release Summary and Idaho Fish and Game Fish Release Database and to the IDFG Research Bureau via the Data Entry Form for Release Database. *Ralph Steiner*

2.4.6 Oxbow Fish Hatchery - NA

2.4.7 Eagle Fish Hatchery
No BY2006 eyed-eggs were collected in 2006. No further collections are scheduled for this project.

2.4.8 Shoshone Bannock Tribes Egg Box Program
In 2006, staff and IDFG spawned adult Chinook salmon at the South Fork Salmon River and outplanted over 300,000 eyed eggs in Dollar Creek. However, as a result of intensive forest fires during July-October, 2007, our staff requested IDFG to release pre-spawned adult summer Chinook salmon in lieu of taking eggs for the egg-box program.

On August 24 and 28, 2007, McCall Fish Hatchery personnel released 90 females and 70 males; and 100 females and 125 males, respectively for a total release of 385 adult Chinook salmon. The release site, Roaring Creek, was located approximately 1.5 miles below the Dollar Creek confluence with the South Fork Salmon River. This site was utilized due to the lack of ready access to Dollar Creek and the necessity to get in and out because of forest fires. *Lytle Denny*

2.5 Brood Year 2007 Chinook Salmon

2.5.1 Sawtooth Fish Hatchery
The LSRCP has a mitigation goal to provide adult returns of 19,445 adult Chinook above Lower Granite Dam annually. The SFH was constructed from 1983-1985 and began operations in 1985 to contribute to this adult spring Chinook salmon goal to return 11,310 to the SFH, 6,090 to the East Fork Salmon River and 2,045 to Valley Creek (based on a SAR of 0.87%). The original production design for SFH was for 2.3 million smolts including 1.3 million smolts in the Salmon River at SFH, 700,000 for the East Fork Salmon River and 300,000 smolts released in Valley Creek. The Valley Creek component of the

program has never been pursued and the East Fork Salmon River component was changed in 1998 to a natural production program.

Water from the Salmon River water that is used in the outside raceways at Sawtooth hatchery tests positive for the whirling disease pathogen. Although Chinook salmon parr larger than 7 centimeters are resistant to whirling disease, they must be reared on pathogen free water prior to reaching that size. A source of pathogen free well water has been developed at the hatchery but only in volumes sufficient to rear approximately 1.3 million parr.to the 7 cm. size prior to transfer to river water. Therefore, pending additions of new pathogen free water at the facility, production is currently limited to about 1.3 million smolts.

To achieve the current 1.3 million smolt production level at SFH, approximately, 350 females and 350 males are needed for broodstock.. This number includes jacks and accounts for pre-spawning mortality. This brood level will provide 1.5 million green eggs at 4,300 egg fecundity and 1.3 million smolts at an average of 88% eyed egg-to-smolt survival.

Brood Fish Health- Broodstock disease sampling efforts for 2007 detected *Renibacterium, IHNV, Myxobolus cerebralis* and *Ichthyophthirius multifilis.* Prolong formalin treatments at 40 mg/l for 6 hours (by veterinary extra-label prescription) helped reduce pre-spawning mortality due "ICH" from 51% to 3%. ELISA surveillance detected 1/73 (1.37%) female with a high optical density. The eggs from this female were culled. One of 15 fish sampled was positive for *M. cerebralis* the etiologic agent of whirling disease. IHNV was detected in 1 of 90 fish sampled. *Doug Munson*

2.5.1.1. Production status - As of January 2, 2008, there are approximately 300,500 fry ponded and started on feed in six indoor vats using well water. *Brent Snider*

2.5.1.2. Outside rearing - Final rearing takes place in one of fourteen outside raceways. These raceways are supplied with raw, river water. The target Density Index and flow index at Release are 0.15-0.20 and 1.0 – 1.6 respectively. At release the smolts are crowded into the connected raceway tailrace then crowded from the tailrace to the Salmon River via a buried 24 inch pipeline. BY07 spring Chinook will utilize four outside raceways. *Brent Snider*

2.5.1.3. Juvenile monitoring and evaluation - Standard protocol is to sample count at least monthly for growth monitoring during their rearing cycle, and approximately one week before release. Length frequencies and condition factors will be determined from a representative sample prior to release. A fin clip quality check and CWT retention check will be completed before release. IDFG research personnel will be PIT tagging (15,000) during March of 2009, and monitor PIT tag detection at dams. *Brian Leth*

2.5.1.4. Fish health - Chinook salmon reared at this facility will be inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*.

The preliberation sample will consist of 20 randomly collected fish and examined for *R. salmoninarum, Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. This sample will be taken within 45 days of release. One metaphylactic feeding of erythromycin-medicated feed are planned for juveniles with a target dose of 100 mg/kg for 28 days. Diagnostic services will be provided upon request. *Doug Munson*

2.5.1.5. Projected release - BY2007 releases are planned for April 2009. Approximately 295,000 smolts will be released below the Sawtooth FH weir. *Brent Snider*

2.5.1.6. Excess production strategies - No projected excess. *Brent Snider*

2.5.1.7. Transportation – None. *Brent Snider*

2.5.1.8. Communication - Monthly hatchery narrative reports are available to all requesting to be included on the distribution list. Summary run report, Annual Operation and Maintenance report and final Brood Year report are available after completion and upon request. *Brent Snider*

2.5.2 McCall Fish Hatchery

McCall FH requires 1,360 returning SFSR summer chinook to support program release objectives of 300,000 eyed eggs for SBT Dollar Creek in-stream incubator boxes and a 1.0 million hatchery smolt release at Knox Bridge on the South Fork Salmon River. Typically, 454 females and 906 males (including 36 jacks) need to be ponded as broodstock. On average this should allow for spawning of 385 females given an average pre-spawning mortality rate of 15%. Assuming a BKD High culling rate of 5% and an average fecundity of 4,300 eggs per female would provide a total of 1,338,000 eyed eggs. A rearing mortality rate of 3%, post-eye, at MCFH would allow for a goal release of 1,000,000 smolts. Overall, MCFH's adult return goal is 8,000 SFSR summer Chinook above Lower Granite Dam. Additionally, MCFH rears up to 100,000 Johnson Creek origin summer Chinook salmon, to smolt, annually.

Brood Fish Health- Approximately 2.4% of the brood females sampled by ELISA were above 0.25 and considered high. The eggs from these females were culled. Pre-spawning mortality was measured at 9% in 2007. No other pathogens were detected. *Doug Munson*

2.5.2.1. Production status - As of December 10, 2007 there are 1,037,576 BY2007 summer Chinook alevin and fry being reared at McCall FH. It is projected that all fry will be setout by mid-February 2008. These fry are the retained progeny from spawning 293 SFSR returning summer Chinook females.

A total of 344 SFSR Reserve summer Chinook females were spawned at the SFSR trap August 17 – September 5, 2007. Eggs from 9 of these females were immediately discarded (5 based on carcass examination revealing gross clinical signs consistent with BKD and the other 4 based on egg quality concerns). Eggs from the remaining 335 females produced a total 1,437,057 green eggs at an average fecundity of 4,290 eggs per female. Average eye-

up was 83.87%. Each incubation tray was loaded with the eggs from two females. Fish health protocol required the initial culling of eggs from females who returned ELISA optical densities greater than 0.250. Elevated "BKD High" optical density was detected in 8 females, but due to incubation tray loading the eggs from 15 females, or 52,555 eyed eggs, were destroyed. *Gene McPherson/Steve Kammeyer*

2.5.2.2. Rearing - Early: At swim-up summer Chinook fry will be transferred into 12 indoor vats with screens initially placed at ½ vat length. Approximately 86,400 fry will be reared in each vat. Hourly hand feeding during the day will commence when 80% of set out fry achieve swim-up. Flows will initial be set at 80 gpm then increased to 130 gpm (maximum) when fry are well on feed. Individual vats will be extended to full length when the density index reaches 0.50 to 0.55. Approximately ½ of the fry will be marked (hand ad-clipped) into an outdoor pond in early June (180 – 280 fpp). At this time remaining fry will be subdivided into emptied vats to provide space for continued rearing (42,500 to 58,400 in 11 vats). Remaining fry (100 – 180 fpp) will be marked (MATS Automated Trailer) into the second outdoor pond in early July with individual vat densities ranging from 0.30 to 0.41 (flow indices 0.75 – 1.02).

Final: Two outdoor rearing ponds will be utilized for rearing the reserve parr to smolt. Summer Chinook in the ponds will be hand fed a dry pellet diet with a low phosphorus formulation and fortified with an EIBS vitamin pack. Sample counts will be conducted monthly to monitor growth. *Gene McPherson/Steve Kammeyer*

2.5.2.3. Juvenile monitoring and evaluation - All SFSR summer Chinook will be ad-clipped, approximately 250,000 will be coded-wire-tagged and approximately 52,000 will receive a PIT tag. Marking crews will hand ad-clip approximately 512,200 by early-June into Pond 1. MATS will be used to ad clip 263,100 and ad/cwt 250,000 early-July into Pond 2. PIT tags will be inserted into approximately 52,000 presmolts from Pond 1 in February 2009. Approximately two weeks prior to release a sample of 300 summer Chinook (crowded with a seine to make selection more random) from each pond will be checked by McCall FH hatchery staff to provide a baseline for mark quality, release size and fish condition. *Gene McPherson/Steve Kammeyer*

The Nez Perce Tribe is operating a PIT tag array below the juvenile release site in the upper mainstem South Fork Salmon River (river kilometer 522.303.215.65) to help evaluate the survival of the juvenile releases out of the SFSR and survival back as adults. This PIT tag array will also help provide real time estimates of adults into the SFSR and help evaluate natural and hatchery composition. Please contact Nez Perce Tribe personnel if the release date schedule changes. *Bill Young/Jason Vogel*.

2.5.2.4. Fish health - Chinook salmon reared at this facility are being inspected by the EFHL on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens. Diagnostic services will be provided upon request. The preliberation sample will consist of 20 randomly selected fish and examined for *Renibacterium*, viral replicating agents and whirling disease *M. cerebralis*. Goede's

organosomatic index will be performed as a part of this preliberation examination. The preliberation examination will be performed between 30 and 45 days prior to release. *Doug Munson*

2.5.2.5. Projected release - Projected target for release in March 2009 is 1,017,000 smolts at 18-20 fpp. *Gene McPherson/Steve Kammeyer*

2.5.2.6. Excess production strategies - To reduce inventory to a "full hatchery capacity," 99,811 eyed eggs were culled that had been spawned from 27 females and were in incubation trays where one of the contributing females demonstrated ELISA results of 0.127-0.249 (eggs from 14-Low Positive females paired with eggs from 13 other females). *Gene McPherson/Steve Kammeyer*

2.5.2.7. Transportation strategies – N/A *Gene McPherson/Steve Kammeyer*

2.5.2.8. Communication - Hatchery staff will maintain communication with LSRCP coordinators, IDFG Fishery Bureau Staff, IDFG Fish Health Pathologists, IDFG Fish Marking Coordinators, and NPT Fishery Staff through rearing cycle as needed. In addition, monthly production narratives will be provided to representatives from each organization. *Gene McPherson/Steve Kammeyer*

2.5.3 Johnson Creek

See JCAPE project goals in Section 2.4.3 above.

2.5.3.1. Production status - As of January 1, 2008 there were 92,177 BY07 supplementation summer Chinook being reared or in incubation trays at McCall FH.

A total of 25 Johnson Creek returning natural females were spawned at the SFSR trap between August 17 – August 31, 2007 producing a total of 114,396 green eggs (after culling) at an average fecundity of 4,576 eggs per female. Average eye-up was 81.8% resulting in 93,520 eyed eggs. Eggs from individual females were incubated separately (1 female/tray). Fish health protocols would require the culling of eggs from females who returned ELISA optical densities greater than 0.25. None of the 25 females spawned were culled. *John Gebhards*

2.5.3.2. Outside rearing - Early rearing: At swim-up Chinook fry will be transferred into two indoor rearing vats with screens initially placed at ½ lengths. Fry are initially reared in two indoor rearing tanks. Hourly hand feeding during the day will commence when 80% of set out fry achieve swim-up. Flows will initially be set at 80 gpm then increased to 130 gpm (maximum) when fry are well on feed. Individual vats will be extended to full length when the density index reaches 0.30 to 0.35. Following June reserve SFSR salmon ad fin clip marking, the Johnson Creek fish will be divided into additional vats to reduce rearing densities. All of these fish will receive a CWT in mid-July (MATS) and be moved back into the indoor vats for continued rearing. As density indices approach 0.40 Chinook parr will be subdivided into additional vats.

Final rearing: Johnson Creek Chinook parr will be moved into the outdoor collection basin as they are VIE elastomer marked in November. Chinook will be hand fed a moist pellet diet with a low phosphorus formulation and fortified with an EIBS vitamin pack (2.5 mm and 3.0 mm feed size). Sample counts will be conducted monthly to monitor growth. *John Gebhards*

2.5.3.3. Juvenile monitoring and evaluation - All Johnson Creek Chinook will be CWT tagged and VIE elastomer marked and approximately 12,000 will receive a PIT tag. MATS marking trailers will be used to complete CWT tags in July by IDFG personnel. Fishery personnel from the NPT will be responsible for VIE elastomer and PIT tagging (12,000). A baseline mark quality assessment will be conducted by NPT fishery personnel as they PIT tag the smolts. *John Gebhards/Craig Rabe*

2.5.3.4. Fish health - These fish will be reared at McCall FH and will follow McCall FH fish health protocols. The Eagle Fish Health Laboratory will provide diagnostic and inspection services to these fish. The pre-liberation sample will consist of 20 randomly collected fish and examined for *Renibacterium salmoninarum,* parasites, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. The preliberation sample will be performed within 45 days of release. *John Gebhards/Doug Munson*

2.5.3.5. Projected release - Projected release target in March 2009 is 83,000 smolts at 26 - 28 fpp. These fish will most likely be directly released into Johnson Creek into the pool located below the Wapiti Ranch bridge. No attempts will be made to acclimate these fish at the time of release. *John Gebhards*

2.5.3.6. Excess production strategies - There no excess production associated with this brood year. *John Gebhards*

2.5.3.7. Transportation - Johnson Creek summer Chinook will be transported to release site by NPT fisheries personnel. The NPT will provide personnel and three or four 1-ton 4x4 trucks with 300 – 400 gallon tanks for transporting smolts to Johnson Creek near Wapiti Ranch for release. One scheduled release trip (3 to 4 trucks per trip) is planned for each day. Release of these smolts is tentatively scheduled for March 2009. *John Gebhards*

2.5.3.8. Communication - The JCAPE project is responsible for preparing annual brood year reports that are submitted to both NOAA Fisheries and BPA. These reports are not currently sent to the contact list (Section 5), but are available upon request or through BPA's website or from the JCAPE project staff. *John Gebhards*

2.5.4 Pahsimeroi Fish Hatchery

The mitigation goal for Pahsimeroi FH is to release up to 1,000,000 Summer Chinook smolts annually into the Pahsimeroi River. Approximately 300 pair of adult Summer Chinook are required to meet this mitigation when considering prespawning mortality and culling of disease positive adults.

Brood Fish Health- ELISA monitoring of broodstock females was able to detect 3/208 (1.44%) with optical densities above 0.25. The eggs from these females were culled. Pre-spawning mortality was measured at 5.7%. *Myxobolus cerebralis* was detected 0 of 20 fish sampled. *Doug Munson*

2.5.4.1. Production status - - On January 1, 2008 there were 953,407 BY2007 Pahsimeroi FH origin eyed eggs/fry on station at Sawtooth FH. All will be transferred to Pahsimeroi FH in June 2008. *Todd Garlie/Brent Snider*

2.5.4.2. Outside rearing - All BY2007 Pahsimeroi origin pre-smolts will be transferred to Pahsimeroi's secondary rearing ponds in June, 2008. *Todd Garlie/Brent Snider.*

2.5.4.3. Juvenile monitoring and evaluation - We plan 100% AD clip and 50,000 CWT of BY2007 fish. Approximately 15,000 will be PIT tagged in February 2009. *Rodney Duke*

2.5.4.4. Juvenile fish health - Chinook salmon reared at this facility will be inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. Diagnostic services will be provided upon request. The preliberation sample will consist of 20 randomly collected fish and examined for *R. salmoninarum*, Myxobolus cerebralis, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. The preliberation sample will be performed within 45 days of release. One feeding of erythromycin-medicated feed will be applied to juveniles with a target dose of 100 mg/kg for 28 days. *Doug Munson*

2.5.4.5. Projected release - These fish will be released volitionally beginning April 15, 2009. The releases from rearing pond 1 and rearing pond 2 will be staggered to avoid overwhelming the smolt bypass structures in the Pahsimeroi River. Smolts will be given a total of 14 days to volitionally migrate from the ponds. The target size at fish release is 15 fpp. *Todd Garlie*

2.5.4.6. Excess production strategies - None

2.5.4.7. Transportation strategies - None-Volitional Release. *Todd Garlie*

2.5.4.8. Communication - Pahsimeroi Hatchery provides monthly inventory summaries to an electronic distribution list which includes IDFG fisheries bureau personnel, LSRCP personnel, and IPC fisheries personnel. *Todd Garlie/Brent Snider*

2.5.5 Rapid River Fish Hatchery

Approximately, 2,500 Chinook are needed annually for brood stock for the Rapid River FH spring Chinook salmon program. This number includes jacks and accounts for pre-spawning mortality at the 20-year average as well as average female culling required by disease management constraints and average fecundity. This brood level will provide 3.4 million green eggs and 3.0 million smolts at an average of 88% eyed egg-to-smolt survival

to meet the smolt release goals. Release sites and numbers have yet to be determined. That determination will depend upon agreement among the participants in US v Oregon.

Brood Fish Health- ELISA monitoring of female broodstock detected 22/1681 (1.3%) females with optical densities above 0.25. The eggs from these females were culled. Pre-spawning mortality was measured at 4.6% in 2007. IHNV was not detected in 90 fish sampled. *Doug Munson*

2.5.5.1. Production status - As of December 1, 2007, 3.6 million BY2007 spring Chinook salmon sac fry were being incubated in vertical stack incubators. An additional 17,600 fry have been ponded into indoor vats. About 80,000 eyed eggs and swim-up fry were transferred to NOAA Fisheries for research in January 2008. Additional fry will be culled (base on ELISA) to reduce inventory to 3.1 million; this inventory will be ponded in December 2007 through March 2008. *Ralph Steiner*

2.5.5.2. Outside rearing - Outside rearing takes place in two stages. For initial rearing, fry are moved from vertical stack incubators to eleven outside raceways. Density and flow indices are projected to average 0.35 and 1.30, respectively in mid June when the fingerlings will be marked and moved to the final rearing ponds. Final rearing continues in the rearing ponds until release, which will begin in mid-March and extends to late April 2009. Final rearing density and flow indices are projected to average 0.19 and 2.17 respectively at the beginning of release. During release some smolts are collected using a sane and loaded onto transport trucks for release at the designated remote locations. The remaining fish will be volitionally released into Rapid River. *Ralph Steiner*

2.5.5.3. Juvenile monitoring and evaluation - Marking will be performed in June of 2008 and include 100% AD-clips and 100,000 CWT. During marking the fingerlings will be moved from raceways to rearing ponds. All rearing units will be sampled twice/month for weight. Samples are comprised of at least 300 fish/rearing unit. At the end of each month, 60 fish sub-samples are measured to determine average total length and condition factor. Starting the month marking is completed and continuing until release, a quality check of AD-clips will be performed on the sub-samples and fish will be categorized as full-clip, partial-clip, or no-clip. In addition, about 50,000 PIT-tags may be implanted during the first week of February 2009 for CSS. *Ralph Steiner*

2.5.5.4. Juvenile fish health - Chinook salmon reared at this facility will be inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. Diagnostic services will be provided upon request. The pre-liberation sample will consist of 20 randomly collected fish and examined for *R. salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. The preliberation sample will be performed within 45 days of release. One metaphylactic feeding of erythromycin-medicated feed will be applied to juveniles with a target dose of 100 mg/kg for 28 days. *Doug Munson*

2.5.5.5. Projected release - Release of BY07 smolts is expected to be in March and April of 2009 at the designated release sites. It is expected that smolts will be transported to the Snake River by IPC tanker trucks and released at the boat ramp below Hells Canyon Dam. In addition, IPC tankers may transport smolts to other agreed upon sites. *Ralph Steiner*

2.5.5.6. Excess production strategies - Excess production shall be released at agreed upon release sites. As of December 2007 rearing plans are to reduce incubation inventory to preclude excess production. *Ralph Steiner*

2.5.5.7. Transportation strategies - Transport will take place in oxygenated Rapid River water at 0.5 lbs/gallon. The remaining smolts will be released volitionally from Rapid River FH directly into Rapid River from March to April 2009. *Ralph Steiner*

2.5.5.8. Communication - Monthly Production Summaries and a Monthly Narrative Report are submitted to the IDFG Anadromous Fish Hatchery Supervisor and IPC. Release groups will be reported to the IDFG Fisheries Bureau via annual Marked Release Summary and Idaho Fish and Game Fish Release Database and to the IDFG Research Bureau via the Data Entry Form for Release Database. *Ralph Steiner*

2.5.6 Oxbow Fish Hatchery - NA

2.5.7 Eagle Fish Hatchery

No BY2007 eyed-eggs were collected in 2007. No further collections are scheduled for this project.

2.5.8 Shoshone Bannock Tribes Egg Box Program

To maintain, rehabilitate, and enhance salmon population viability, the SBT initiated an in-stream incubation program in Dollar Creek, a tributary of the South Fork Salmon River. Eyed summer Chinook eggs are placed into hatch-boxes in late fall, incubated in stream water, and allowed to volitionally emigrate at approximately the same time as fry in the natural system. This supplementation activity is designed to mimic natural production to develop a naturally spawning tributary component of the SFSR in order to increase abundance, genetic diversity, and productivity of summer Chinook salmon as well as increase knowledge of fishery management and hatchery supplementation.

2.5.8.1. Production status - In 2006, staff and IDFG spawned adult chinook salmon at the South Fork Salmon River and outplanted over 300,000 eyed eggs in Dollar Creek. However, as a result of intensive forest fires during July-October, 2007, our staff requested IDFG to release pre-spawed adult summer chinook salmon in lieu of taking eggs for the egg-box program.

On August 24 and 28, 2007, McCall Fish Hatchery personnel released 90 females and 70 males; and 100 females and 125 males, respectively for a total release of 385 adult chinook salmon. The release site, Roaring Creek, was located approximately 1.5 miles below the Dollar Creek confluence with the South Fork Salmon River. This site was utilized due to

the lack of ready access to Dollar Creek and the necessity to get in and out because of forest fires. *Lytle Denny/Kurt Tardy*

2.6 Brood Year 2008 Chinook Salmon

2.6.1 Sawtooth Fish Hatchery

The LSRCP has a mitigation goal to provide adult returns of 19,445 adult Chinook above Lower Granite Dam annually. The SFH was constructed from 1983-1985 and began operations in 1985 to contribute to this adult spring Chinook salmon goal to return 11,310 to the SFH, 6,090 to the East Fork Salmon River and 2,045 to Valley Creek (based on a SAR of 0.87%). The original production design for SFH was for 2.3 million smolts including 1.3 million smolts in the Salmon River at SFH, 700,000 for the East Fork Salmon River and 300,000 smolts released in Valley Creek. The Valley Creek component of the program has never been pursued and the East Fork Salmon River component was changed in 1998 to a natural production program. Approximately, 350 females and 350 males are needed for broodstock for the SFH spring Chinook salmon program. This number includes jacks and accounts for pre-spawning mortality. This brood level will provide 1.5 million green eggs at 4,300 egg fecundity and 1.3 million smolts at an average of 88% eyed egg-to-smolt survival to meet the SFH component. An additional 250 pairs are required to reach the original production design of 2.3 million smolts. Currently, SFH has sufficient specific, pathogen-free water to rear 450,000 parr to 7 cm target size prior to transfer to final rearing on raw river water.

2.6.1.1. Projected adult return - Not available at this time. *Brian Leth*

2.6.1.2. Ladder operation - Depending on spring runoff conditions, ladder and trap operations will begin between mid-May and mid-June and continue through Labor Day weekend of 2008. Trapped fish are removed daily, examined for marks, gender, injuries, treated with injectable erythromycin as necessary, and either placed into one of three adult holding ponds or released directly into the Salmon River above the hatchery, depending upon what mark or gender the fish may have. All unmarked fish are released above the hatchery intake after daily trap operations have ended. Brood fish are made up of marked hatchery fish. *Brent Snider*

2.6.1.3. Adult fish health - Brood fish trapped at this facility will be examined for pathogens during routine spawning. Upon arrival at the trap, adult Chinook salmon will be injected with a 20 mg/kg intra-peritoneal injection of erythromycin to control Renibacterium. To reduce prespawning mortality due to *Ichthyophthirius multifilis,* adult holding water will be treated with 167 mg/l formalin for up to 7 days per week. Once water temperatures exceed 65ºF, an extended formalin treatment of 40 mg/l for 6 hours will be implemented if *I. multifilis* is detected. All brood females will be sampled for *Renibacterium salmoninarum* by ELISA technology. Eggs from females with optical densities of 0.25 and above will be culled from production, unless egg take needs are not met. Sixty Chinook salmon carcasses of fish that will be released above the Sawtooth FH weir to spawn naturally may be sampled for viral replicating agents to ascertain IHNV

prevalence, estimate risk of horizontal infection to Sawtooth FH production fish, and to facilitate the decision process in regards to the timing of fish production events. Brood Chinook salmon will be examined for viral replicating agents (60 fish by ovarian fluid sample and 30 fish will have kidney/spleen sample taken for viral assay). A 20 fish sample will be required to monitor *Myxobolus cerebralis* prevalence. The APHIS veterinarian-in-charge will be notified if reportable pathogens are detected. Pre-spawning mortality of adult spring Chinook salmon will be categorized by suspected cause.

Egg inventory in December will be available to EFHL so as to make predictions for erythromycin medicated feed pre-mix needs. *Doug Munson*

2.6.1.4. Adult outplanting/marking - To be determined prior to trapping in 2008. Expect that all unmarked Chinook will be released above the weir. Marking of released Chinook will follow ISS Research protocols. *David Venditti/Brent Snider*

2.6.1.5. Carcass disposition: - Carcasses will be placed into totes in the back of a refrigerated freezer trailer. At the end of the season these carcasses will be taken to a rendering plant. Identified excess hatchery fish will be ponded separate from broodstock to be available for subsistence uses then provided to Tribal and charitable organizations. These excess fish will not be treated with injectable erythromycin nor anaesthisized with MS-222 nor treated with formalin. *Brent Snider*

2.6.1.6. Adult monitoring and evaluation - Adults will be treated with formalin at least three times a week and up to seven days per week depending on river water temperatures and fish health. Pre-spawning mortalities will be investigated to determine the cause of death with fish health samples being sent to the Eagle Fish Health Lab. Genetic samples will be collected from all unmarked fish and all hatchery spawned broodstock. *Brent Snider*

2.6.1.7. Spawning/egg take plans, mating protocol - Approximately, 350 females and 350 males are needed for broodstock for the Sawtooth FH spring Chinook salmon program. Marked hatchery fish will be spawned with marked hatchery fish across brood years where possible using the following spawning protocol; > 100 pairs then 1m: 1f random cross, 50 to 100 pair then 2m : 1f split random cross , 25 to 50 pair then 3m: 1f split random cross and < 25 pair then 4m : 1f split random cross. The split random cross includes eggs from one female being split in equal groups of one, two, three to four then each group fertilized by one male. After fertilization the eggs are recombined into a single group for incubation and water hardening. If cryopreserved sperm is needed fill out request form (Appendix A) Assistance will be provided to NPT cryopreservation program. *Brent Snider/Bill Young*

2.6.1.8. Egg incubation - Eggs will be water hardened/disinfected with a 100 mg/l solution of buffered iodine. Formalin will be added to each incubation stack to retard fungus development daily at a rate of 1,667 ppm (15-min drip). Formalin treatments will be initiated 2 days following spawning and continue until immediately prior to hatch. After eggs manifest a strong “eye” the eggs are sorted and enumerated mechanically. Normally one female’s eggs are incubated in a single incubation tray. *Brent Snider*

2.6.1.9. Juvenile fish health - Chinook salmon reared at this facility will be inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. Diagnostic services will be provided upon request. The preliberation sample will consist of 20 randomly collected fish that will be examined for *R. salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. This sample will be taken within 45 days of release. One metaphylactic feeding of erythromycin-medicated feed will be applied to juveniles with a target dose of 100 mg/kg for 28 days. The APHIS veterinarian-in-charge will be notified if reportable pathogens are detected. *Doug Munson*

2.6.1.10. Communication - Final plans will be determined when fish run projection is clear. Discussion with ISS project leaders, IDFG, and LSRCP is ongoing. Planning coordination occurs with NPT for cryopreservation program. Monthly hatchery narrative reports are available to all requesting to be included on the distribution list. Summary run report, Annual Operation and Maintenance report and final Brood Year report are available after completion and upon request. Weekly adult trapping information is available on the IDFG website. *Brent Snider*

2.6.2 McCall Fish Hatchery

McCall FH requires 1,360 returning SFSR summer chinook to support program release objectives of 300,000 eyed eggs for SBT Dollar Creek in-stream incubator boxes and a 1.0 million hatchery smolt release at Knox Bridge on the South Fork Salmon River. Typically, 454 females and 906 males (including 36 jacks) need to be ponded as broodstock. On average this should allow for spawning of 385 females given an average pre-spawning mortality rate of 15%. Assuming a BKD High culling rate of 5% and an average fecundity of 4,300 eggs per female would provide a total of 1,338,000 eyed eggs. A rearing mortality rate of 3%, post-eye, at MCFH would allow for a goal release of 1,000,000 smolts. Overall, MCFH's adult return goal is 8,000 SFSR summer Chinook above Lower Granite Dam. Additionally, MCFH rears up to 100,000 Johnson Creek origin summer Chinook salmon, to smolt, annually.

2.6.2.1. Projected adult return - Specific return projections are unavailable at this time. However it is likely that adult returns will be higher than what was experienced in the 2007 run year based on the high return rate of jacks in 2007. If this estimate holds true, returns should exceed hatchery broodstock needs and should provide an ample surplus of reserve salmon available for both sport and tribal harvest seasons. *Sam Sharr*

2.6.2.2. Ladder operation - A new permanent bridge/ weir, with a concrete sill across the river bottom was completed and operational for the 2007 return year. The new design has eliminated the need for a large crew to work in the river to assembly the previously used temporary weir. No changes to ladder/ trap standard operating procedures are anticipated during the 2008 return year. The SFSR weir will be installed after high water when river flows begin to subside. The new bridge/ weir design will allow for an earlier placement and is tentatively expected to occur when the F.S. USGS Krassel Gauging Station staff

reading reaches 4.0 to 4.2; approximately the second week of June. Hatchery personnel will monitor flows physically at the SFSR and on-line to determine the appropriate river stage when to lower weir panels.

Upstream migration of returning salmon will be stopped by the SFSR weir allowing for adult interception in the adjoining trap. All Chinook will be processed through the trap where they will be identified by mark type, sexed, measured, scanned for PIT tags and any definable injuries will be noted. Supplementation production ended with BY2002 and the last adult returns from this group took place in 2007; no further supplementation adult returns should occur on the SFSR. Unmarked adults will be injected with erythromycin at a rate of 10 mg/kg and opercal punched prior to being passed upstream to spawn naturally. No jacks receive an erythromycin injection. Reserve salmon intended for brood stock will also be injected with erythromycin and then placed into the holding ponds separated by sex. Excess reserve Chinook not intended for use as brood stock will not be injected with erythromycin but will be opercal punched and placed into a subdivided section of the female holding pond until the time they are either loaded onto a truck for transport downstream near Roaring Creek (during fisheries) or are dispatched for subsistence purposes.

During periods of heavy fish movement access into the trap will be blocked by means of pickets inserted at the end of the ladder once approximately 400 fish have entered the trap to prevent potential smothering. Trapping operations will continue through the end of spawning to a point when no fish have been trapped for 1 week and then water will be shut off. Depending on previous trapping results the weir may be removed at this time or left in place for an additional period.

All unmarked returning salmon will be visibly checked for the presence of any detectable elastomer mark; indicating the fish to be a Johnson Creek supplementation "stray." Any Johnson Creek strays encountered will be segregated, in a method to be determined, and then transferred to Nez Perce fishery personnel who will be responsible for transporting/releasing the fish into Johnson Creek. All unmarked salmon will be scanned using a coded-wire-tag detection wand as part of being processed through the SFSR Trap. On a positive CWT detection, additional attention will be exercised to check for the possible presence of an elastomer mark. At this writing, in the absence of any visibly detectable elastomer mark, the disposition of an unmarked/CWT returning salmon has not been determined by IDFG Fishery Bureau Staff. *Gene McPherson/ Steve Kammeyer*

2.6.2.3. Adult fish health - Broodstock trapped at the South Fork Trap on the SFSR will be injected by an intra-peritoneal route with a 10 mg/kg dose of erythromycin to reduce pre-spawning mortality to *Renibacterium*. All brood females will be sampled for *Renibacterium salmoninarum* by ELISA technology. Eggs from females with optical densities of 0.25 and above will be culled from production. Ovarian fluids from 60 females and kidney/spleen tissues from 30 fish will be collected for viral replicating agents examination from 90 fish, while head wedges will be collected from 20 fish for *Myxobolus cerebralis* examination. The APHIS veterinarian-in-charge will be notified of any

reportable pathogen. Pre-spawning mortality of adult summer Chinook salmon will be categorized by suspected cause. *Doug Munson*

2.6.2.4. Adult outplanting/marking - Priority use of reserve Chinook, in excess of hatchery needs, is to provide additional harvest opportunity during sport and tribal seasons. An opercal punch will be used as an identifier to designate these fish and they will not be injected with erythromycin. Fish will be transported to a site near Roaring Creek for release. A portion of the "excess" reserve adults/ jacks may be designated and dispatched for subsistence uses then provided to Tribal and charitable organizations. These fish will not be injected with erythromycin. *Gene McPherson/Steve Kammeyer*

2.6.2.5. Carcass disposition - Pre-spawn mortalities and spawned out carcasses will be return to the SFSR for nutrient supplement at a specified location immediately downstream from the trap water intake. These fish will have been injected with erythromycin and are not approved for subsistence uses. Prior to disposal spawning tags will be removed and the tail will be completely severed from the body to identify these fish for those conducting spawning ground surveys. All female spawning carcasses exhibiting gross internal signs consistent for BKD, as determined by fish pathologists, will be frozen then disposed of in a public landfill. *Gene McPherson/Steve Kammeyer*

2.6.2.6. Adult monitoring and evaluation - Tissue samples will be collected from 100 male and 100 females for the genetics baseline. Coded wire tags recovered from carcasses will be used for age analysis and run-reconstruction. *Contact: Brian Leth*

The Nez Perce Tribe is operating a PIT tag array in the upper mainstem South Fork Salmon River (river kilometer 522.303.215.65) to help evaluate the survival of the juvenile releases out of the SFSR and survival back as adults. This PIT tag array will provide real time estimates of adults into the SFSR and help evaluate natural and hatchery composition. *Bill Young/Jason Vogel*.

2.6.2.7. Spawning/egg take plans, mating protocol - Split random cross will be method employed during spawning McCall FH production salmon and a 1:1 pairing for SBT egg box production. A minimum of 297 reserve females will be spawned for MCFH needs and 88 reserve females to provide eyed eggs for SBT in-stream incubators (1,000,000 McCall FH to smolt, 300,000 SBT to eye). Spawn taking activities will take place on Tuesdays and Fridays and may potentially begin at primary sort - August 8, 2008. Daily spawning activities are limited to a maximum of 120 females per day. A kidney sample, for ELISA BKD analysis, will be collected from all females spawned. Ovarian fluid and cranial wedges, number to be determined by fish pathologists, will be collected from a portion of the spawned females for viral testing and whirling disease. All eggs collected will be linked to tracking fish identification number to an individual egg tray that will correspond to disease samples collected. *Gene McPherson/Steve Kammeyer*

2.6.2.8. Egg incubation - Hatchery production eggs and eggs spawned for SBT egg boxes will be returned to McCall FH for incubation in Heath style incubators trays. Reserve eggs will be loaded into trays as two females per tray. Formalin will be added to each

incubation stack to retard fungus development daily at a rate of 1,667 ppm (10-min drip). Formalin treatments will be initiated 2 days following spawning and continue until immediately prior to hatch. A light "rodding" of trays to remove sediments will begin weekly once eggs accumulate 400 TU's. At 550-600 TU's eggs will be shocked then picked/ enumerated the following day. Following enumeration eyed eggs coming from females having ELISA optical densities greater than 0.250 will be discarded. Once all eggs have been enumerated additional eggs may be culled, based on ELISA results, to reduce inventory to achieve a "full capacity" hatchery level. A secondary "picks" will be performed following complete egg hatch (1,000 – 1,050 TU's). Fry will be transferred to indoor vats for early rearing at swim-up (1,700 – 1,750 TU's). *Gene McPherson/Steve Kammeyer*

2.6.2.9. Juvenile fish health - Chinook salmon reared at this facility will be inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. Diagnostic services will be provided upon request. The preliberation sample will consist of 20 randomly collected fish and examined for R. *salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. The pre-liberation sample will be performed within 45 days of release. No pre-emptive erythromycin medicated feed treatments are scheduled for BY2008 SFSR SU to be reared at MCFH. The APHIS veterinarian-in-charge will be notified of any reportable pathogen. *Doug Munson*

2.6.2.10. Communication - As eggs are enumerated McCall FH Manager will coordinate with SBT fishery personnel to determine a schedule to transfer eyed eggs. Spawning summaries will be included in the annual run report. *Gene McPherson/Steve Kammeyer*

2.6.3 Johnson Creek

See JCAPE project goals in Section 2.4.3 above.

2.6.3.1. Projected adult return – As of January 1, 2008, no pre-season prediction has been made for the 2008 adult return year. The Johnson Creek pre-season prediction is calculated by utilizing representative PIT tags (barged or bypassed in the same ratio as unmarked fish) across life stages and independent for each origin type in conjunction with the average Johnson Creek adult run timing at Bonneville and the average Johnson Creek adult survival from Bonneville to Johnson Creek (averages from 2000 to 2007 PIT tag data). The proportion of PIT tagged adults returning to Bonneville (by origin type and lifestage) was multiplied by the actual or estimated juvenile emigration number (by origin type and lifestage) and then multiplied by the average run timing and average survival proportions of adults returning to Johnson Creek. Based on past experience, an in-season prediction is far more reliable once adult PIT tag detections begin at the Columbia and Snake River Dams.

Once a pre-season run prediction for Johnson Creek is estimated a sliding scale approach will be utilized to determine the rate at which to select brood stock for the JCAPE supplementation program. When the natural origin adult prediction is less than 100 adults, the JCAPE project consults with NOAA Fisheries on what rate to select natural origin

adults for brood stock. For 2008, the JCAPE project will at a minimum attempt to retain 25 pairs of adults. This would result in brood stock size of 50 in an effort to maintain a minimum effective population size (Ne) of 50. If actual natural origin adult numbers exceed our prediction we would be able to outplant excess collected adults back into the natural spawning habitat prior to the start of spawning. As the trapping season progresses, we would continue to evaluate the number of natural origin adults that have returned and make adjustments to the collection rate as needed to meet the minimum brood stock size of 50 fish. *John Gebhards*

2.6.3.2. Weir operation - The Johnson Creek weir will be installed when spring water flows subside to 700 cfs or below, in late May to mid June. Fish will be processed out of the trap daily. The weir will be removed when no fish have been captured for seven consecutive days, usually in mid September. *John Gebhards*

2.6.3.3. Adult fish health - All fish (excluding jacks) trapped on Johnson Creek will be injected via an intraperitoneal route with 20 mg/kg erythromycin prior to transport to the South Fork Trap on the South Fork of the Salmon River or released back into Johnson Creek. During spawning, all brood females will be sampled for *Renibacterium salmoninarum* by ELISA technology. Eggs from females with optical densities of 0.25 and above will be culled from production. Brood fish will also be examined for viral replicating agents and *Myxobolus cerebralis*. Eggs from parents with serious pathogens will be culled. The APHIS veterinarian-in-charge will be notified of any reportable pathogens. *John Gebhards/Doug Munson*

2.6.3.4. Adult outplanting/marking - Adult Chinook captured at Johnson Creek will either be: 1) released upstream for natural spawning; 2) selected as broodstock and transported to the SFSR (natural fish only); 3) released downstream if captured in the downstream trap; or 4) euthanized and placed into Johnson Creek for nutrient enhancement (stray AD fin clipped fish only). All fish released above the weir will be opercle tagged. Broodstock transported to the SFSR will both be opercle and floy tagged. *John Gebhards*

2.6.3.5. Carcass disposition - All trap/weir, prespawning mortalities and spawned out carcasses will be transported back to Johnson Creek by NPT fishery personnel for nutrient enhancement. *John Gebhards*

2.6.3.6. Adult monitoring and evaluation - The JCAPE project is integrated with a comprehensive M&E program that follows a detailed M&E Plan (Vogel et al. 2005). The monitoring and evaluation program quantifies 41 regionally standardized performance measures to evaluate the supplementation program. These standard performance measures help inform decisions on Abundance, Survival-Productivity, Distribution, Genetic, Life History, and Habitat. The evaluation plan utilizes comparative performance tests at multiple life stages and involves treatment vs natural experients and repeated meaure desings (treatment vs reference). This program, initiated prior to the first releases of supplemented fish, has been collecting baseline life-history characteristic information, to examine survival of the wild fish in Johnson Creek and any potential effects that the supplementation program may have on the natural population. *John Gebhards/Craig Rabe*

2.6.3.7. Spawning/egg take plans, mating protocol - A maximum of 40 natural origin Johnson Creek adult pairs (including jacks) may be taken for broodstock and transported to the South Fork Trap for holding. Broodstock will be marked with a numbered tyvek opercle tag and a numbered floy tag to ensure identification from SFSR broodstock. Johnson Creek broodstock are spawned on the same days as the SFSR broodstock. Spawn pairing will be one male to one female. An additional male may be used when sperm quantity or quality is questionable. Eggs from 32 females allow for high BKD culling and to maintain smolt production near 100,000.

The JCAPE project has cryopreserved semen available for use in spawning (Appendix A). The use of these samples would follow the guidelines established by the NPT Cryopreservation project and with approval from NOAA Fisheries. *John Gebhards*

2.6.3.8. Egg incubation - Johnson Creek origin eggs will be transported in individual egg bags to the McCall FH for incubation in Heath style incubators trays. Eggs will be loaded into trays at one female per tray. Incubation procedures are the same as those used for SFSR production eggs. *John Gebhards*

2.6.3.9. Juvenile fish health - These fish will be reared at McCall FH and will follow McCall FH fish health protocols. The Eagle Fish Health Laboratory will provide diagnostic and inspection services to these fish. The pre-liberation sample will consist of 20 randomly collected fish and examined for *Renibacterium salmoninarum,* parasites, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. The pre-liberation sample will be performed within 45 days of release. *John Gebhards/Doug Munson*

2.6.3.10. Communication - The JCAPE project will provide weekly updates during the adult trapping and spawning season. These updates will be distributed via e-mail. The JCAPE project is responsible for preparing annual brood year reports that are submitted to both NOAA Fisheries and BPA. These reports are not currently sent to the contact list (Section 5), but are available upon request or through BPA's website or from the JCAPE project staff.

The JCAPE project is required to prepare and submit as a condition of ESA Section 10 permitting an Annual Operation Plan (AOP) for the JCAPE project to NOAA Fisheries. Once the AOP is approved by NOAA Fisheries, it will be available for upon request. *John Gebhards*

2.6.4 Pahsimeroi Fish Hatchery

The mitigation goal for Pahsimeroi FH is to release up to 1,000,000 Summer Chinook smolts annually into the Pahsimeroi River. Approximately 300 pair of adult Summer Chinook is required to meet this mitigation when considering prespawning mortality and culling of disease positive adults.

2.6.4.1. Projected adult return - Not developed at this time. TBA

2.6.4.2. Ladder operation - Projected to operate from June 10, 2008 through October 5, 2008. The trap will be checked most weekdays and usually will not be checked on weekends. Additionally, the ladder can be shut off during heavy weekend fish periods to avoid overloading the adult fish trap. *Todd Garlie*

2.6.4.3. Adult fish health - Ponded salmon will be treated with 60 minute 167 ppm flow-through formalin treatments to control mycotic infections. These treatments will be administered 3 times per week beginning July 1, 2008 and ending September 15, 2008. Each fish that is to be ponded for production or released for natural spawning is to receive an intra-peritoneal injection of erythromycin at a rate of 20 mg/kg body weight for BKD management. Surplus fish killed for charitable/tribal giveaway are not injected.

Adult summer Chinook salmon will be trapped at this facility and injected with 20 mg/kg of erythromycin via an intra-peritoneal route. All brood females will be sampled for *Renibacterium salmoninarum* by ELISA technology. Eggs from females with optical densities of 0.25 and above will be culled from production. Sixty ovarian fluids samples and 30 tissue samples (kidney/spleen) will be collected from 90 females and examined for viral replicating agents. Twenty head wedges will be removed from returning adult salmon to ascertain *Myxobolus cerebralis* prevalence. The APHIS veterinarian-in-charge will be notified of any reportable pathogens detected in brood fish sampling. Pre-spawning mortality of adult summer Chinook salmon will be categorized by suspected cause. *Doug Munson*

2.6.4.4. Adult outplanting/marking – All natural origin Chinook will be released above the weir for natural spawning. If enough Chinook return to provide a fishery, out-plant sites will be determined by the IDFG Fisheries Bureau. *Todd Garlie*

2.6.4.5. Carcass disposition - All fish held for spawning are treated with formalin and erythromycin, so all spawned carcasses are placed in a refrigerated unit and frozen. At the conclusion of the spawning season, the frozen carcasses are transported to a rendering plant. Adults and jacks in excess of spawning needs and not suitable for supplementation use will be given to tribes/charities as per direction by the IDFG's fisheries bureau. *Todd Garlie*

2.6.4.6. Adult monitoring and evaluation - Tissue samples will be collected from 100 male and 100 female adults that are ponded for production. Additionally, tissue samples will be collected from all adults passed upstream of the weir. This sampling is part of the reproductive success study initiated in 2002. All fish trapped will be measured for length, examined for marks/external tags, and scanned for PITs and CWTs. All snouts collected will be sent to the Nampa Research office for CWT extraction and processing. *Brian Leth/Dave Venditti*

2.6.4.7. Spawning/egg take plans, mating protocol - The first sort and spawn is tentatively planned for August 25. Spawning will occur twice per week, usually on Monday and Thursday. A spawning ratio of 1:1 will be used. Jacks will be limited to 10% of the spawning population. The spawning goal at this time is to collect approximately 1,283,000 green eggs to yield the FERC mitigation target of 1,000,000 smolts for subsequent release in 2010. If cryopreserved sperm is needed fill out request form (Appendix A) Assistance will be provided to NPT cryopreservation program. *Bill Young*

2.6.4.8. Egg incubation – In 2008 all eggs collected at Pahsimeroi's lower hatchery will be transferred to the new upper hatchery for incubation and early rearing on well water and secondary rearing on river water. All eggs will be incubated to eye-up at Pahsimeroi FH using well water chilled to 42ºF. The incubator trays are loaded at the rate of one female per tray. From 48 hours after spawning until eye-up, eggs at Pahsimeroi FH are treated three times a week with a 1,667-ppm formalin treatment to prevent fungal growth on the eggs, and three times a week with a 100-ppm Argentyne treatment to prevent soft shell disease, a disease caused by a bacteria that results in increased egg mortality and premature hatching. At eye up the eggs are shocked twice by dropping them into a bucket of water from a height of approximately 16 inches. Dead eggs are picked and enumerated with a Jensorter electronic counter/picker. Early rearing will take place in the new Upper Pahsimeroi Hatchery vat room on 50ºF well water. Target size for ponding is set to 3.5 inches to achieve a refractory WD size prior to exposure to river water containing the WD causative agent. Feeding regime will be regulated to achieve this size by May 15 prior to marking and subsequent transfer to Upper Pahsimeroi rearing ponds. *Todd Garlie*

2.6.4.9. Juvenile fish health - Chinook salmon reared at this facility will be inspected by EFHL on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. Diagnostic services will be provided upon request. Due to the perennial infestation of Ichthyophthirius multifilis, which kills thousands of fish per year, prophylactic treatments of formalin, at a 167 mg/l will be applied three times per week to limit mortalities to this parasite during July and August. The pre-liberation sample will consist of 20 randomly collected fish and examined for *Renibacterium salmoninarum*, *Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. The preliberation sample will be performed within 45 days of release. One metaphylactic feeding of erythromycin-medicated feed will be applied to juveniles with a target dose of 100 mg/kg. Egg inventory numbers will be available to EFHL in December to facilitate erythromycin medicated feed pre-mix needs. *Doug Munson*

2.6.4.10. Communication - Pahsimeroi FH distributes trapping and spawning updates three times per week during the Chinook run. These data summaries are provided electronically to a distribution list. This data can also be utilized in the development of a fishery.

2.6.5 Rapid River Fish Hatchery

Approximately, 2,500 Chinook are needed annually for brood stock for the Rapid River FH spring Chinook salmon program. This number includes jacks and accounts for pre-spawning mortality at the 20-year average as well as average female culling required by

disease management constraints and average fecundity. This brood level will provide 3.4 million green eggs and 3.0 million smolts at an average of 88% eyed egg-to-smolt survival to meet the smolt release goals. Release sites and numbers have yet to be determined. That determination will depend upon agreement among the participants in US v Oregon.

2.6.5.1. Projected adult return - Adult return projections are currently under review. At this time, we expect surplus fish to be available to anglers in 2008. The number of returns to Rapid River FH will depend on harvest by sport and tribal fisheries. The sport fishery will be managed to harvest the state's share of the surplus adipose clipped adult spring Chinook returning to Rapid River FH. Real time predictions will be used to adjust the share. *Ralph Steiner*

2.6.5.2. Ladder operation - The Rapid River FH management practices related to broodstock collection for BY2008 will be based on projected numbers of returning salmon. The trapping phase will be modified to accommodate projected returns as projections are refined during migration. The adult trapping facility will be put into operation March 10, 2008. Spring Chinook are expected to arrive at the trap in May. Marked hatchery fish will be anesthetized, counted, injected with Gallimycin, and transported to the hatchery holding ponds for broodstock. Arriving spring Chinook salmon will not be sexed because dimorphism is not expressed when they arrive at the trap. All marked spring Chinook salmon will be held for broodstock to fill Rapid River FH mitigation needs and to supply eggs to other projects. Broodstock will include a cross-section of the run. Trapping will continue through the first week of September. When trapping ceases, the adult trap will be reconfigured to allow migration around the weir. During trapping extreme conditions may occur, and the trap may be closed until trapping can resume. *Ralph Steiner*.

2.6.5.3. Adult fish health - Adult spring Chinook salmon will be trapped at this facility. Upon arrival into the trap, all adult salmon will receive a 20 mg/kg intra-peritoneal injection of erythromycin to limit pre-spawning mortality to *Renibacterium*. All brood females will be sampled for *R. salmoninarum* by ELISA technology. Eggs from females with optical densities of 0.25 and above will be culled from production. The final culling ELISA optical density will be 0.25. A total of 90 fish will be sampled by a combination of 30 tissue samples (kidney/spleen) and 60 ovarian fluid samples for viral replicating agents. Eggs were water hardened/disinfected with a 100 mg/l solution of iodine. The APHIS veterinarian-in-charge will be notified of any reportable pathogens detected in adult or production fish sampling. Pre-spawning mortality of adult spring Chinook salmon will be categorized by suspected cause. Formalin treatments will start upon ponding of broodstock. Formalin treatments will be applied at 167 mg/l for seven days a week. Egg inventory numbers will be available to EFHL to facilitate erythromycin medicated feed pre-mix orders. *Doug Munson*

2.6.5.4. Adult outplanting/marking - If broodstock needs are exceeded, fish may be removed from holding and released for supplementation. They will not be released into active fisheries. As the run progresses, the number of fish entering the trap may far exceed hatchery broodstock requirements. At that time, some hatchery fish may be transported back into the Salmon River or Little Salmon River to re-enter the fisheries, or be

transported to other drainages to provide fishing opportunity or supplementation. These hatchery fish will be loaded directly from the fish trap and will not be anesthetized or injected. The decision to release hatchery fish will be made based on the number of rack returns, run size as projected by IDFG, and on the overall condition of fish trapped earlier in the run.

Ancillary species will enter the fish trap. All steelhead entering the trap will be sexed, measured, scanned for CWT and PIT, and given a right operculum punch to identify recaptures. Wild steelhead will be sampled for DNA and scales, and released into Rapid River above the weir. Hatchery steelhead will be released into the Little Salmon River about a mile above the confluence of Rapid River unless they scan positive for CWT. Bull trout entering the trap will be measured and processed based on protocol supplied by the United States Forest Service (USFS) Rocky Mountain Research Center. Unmarked Chinook will be anesthetized counted, sexed, injected, measured, given a right operculum punch, sampled for DNA, and released above the weir. *Ralph Steiner*

2.6.5.5. Carcass disposition - The carcasses will be frozen until the end of the spawning season and then hauled to a rendering plant. *Ralph Steiner*

2.6.5.6. Adult monitoring and evaluation - The entire run will be electronically scanned for PIT-tags and scrutinized for jaw-tags, visual identification (VI) tags, radio transmitters, and fin clips. As fish are removed from the holding ponds broodstock will be scanned PIT-tags and CWT. Snouts with a CWT will be collected, placed in a numbered plastic bag, and delivered to the marking lab after spawning. Samples will be collected from all spawned hatchery broodstock for DNA analysis. Additional samples will be taken from 30 individuals from the hatchery broodstock containing PIT-tags for know-age analysis. *Ralph Steiner*

2.6.5.7. Spawning/egg take plans, mating protocol - August 11, 2008 all adults will be collected, and sorted by sex. All ripe females will be spawned each spawn-day. Spawning will take place twice each week for each holding pond and continue through mid-September. We will employ a random cross of two males/female as recommended in IHOT guidelines. All cloudy eggs or eggs from females exhibiting gross signs of BKD will be discarded after consultation with staff from the EFHL on-site. After fertilization, the eggs will be transported to the incubation building for water hardening. Spawned female carcasses will be marked with a numbered tag, matched with an egg bucket number, and a tray number to facilitate tracking for ELISA BKD analysis. Carcasses will be measured, scanned for PIT-tags and CWT. *Ralph Steiner* If cryopreserved sperm is needed fill out request form (Appendix A) Assistance will be provided to NPT cryopreservation program. *Bill Young*

2.6.5.8. Egg incubation - Single female/tray incubation will be the standard however it may be necessary to load two females/tray and/or transfer green eggs to Oxbow FH for initial incubation to achieve a goal of 3.4 million eyed eggs. Eggs will be water hardened in iodophore for 30 minutes and placed in numbered trays facilitate tracking ELISA results. Upon receiving ELISA results, eggs will be segregated or culled based on titers >0.249.

Hatchery personnel will be in regular communication with staff from the EFHL for guidance on culling and segregation. Beginning on the fourth day of incubation, all egg lots will be treated with formalin three times each week at 1,667 ppm for 15 minutes. This will continue until each egg lot accumulates 800 TU. At eye-up (approximately 500 TU), all egg lots will be shocked and picked using a Jensorter™ model BM-4 picker/counter then returned to the cleaned incubators. A second pick will be performed at 750 TU. Hatching occurs about 800 TU. At 1,000 TU, all egg lots undergo another pick off to remove any remaining dead eggs or fry and eggshells. At 1,500 TU fry undergo a fourth pick off and swim-up fry are ponded at 1,750 TU. When the eggs have accumulated 300 TU incubator trays will be rodded weekly or more often if necessary throughout the incubation period to remove silt. *Ralph Steiner*

2.6.5.9. Fish health - Chinook salmon reared at this facility will be inspected by EFHL personnel on a quarterly basis for *Renibacterium salmoninarum*, viral replicating agents, parasites, and bacterial pathogens such as *Aeromonas*, and *Flavobacterium psychrophilum*. Diagnostic services will be provided upon request. The preliberation samples will consist of 20 randomly collected fish and examined for *Renibacterium salmoninarum, Myxobolus cerebralis*, and viral replicating agents. Goede's organosomatic index will also be performed on these fish. The preliberation sample will be performed within 45 days of release. One metaphylactic feeding of erythromycin-medicated feed will be applied to juveniles with a target dose of 100 mg/kg. *Doug Munson*

2.6.5.10. Communication - Trap records will be updated on site and uploaded to the IDFG Fisheries Bureau daily and to IPC weekly. The Fisheries Release Database will be updated and uploaded at least weekly. Pit-tag files will be uploaded to PTAGIS as the run progresses. As incubation and rearing progresses, Monthly Production Summaries and a Monthly Narrative Report are submitted to the IDFG Anadromous Fish Hatchery Supervisor and IPC. Release groups will be reported to the IDFG Fisheries Bureau via annual Marked Release Summary and Idaho Fish and Game Fish Release Database and to the IDFG Research Bureau via the Data Entry Form for Release Database. *Ralph Steiner*

2.6.6 Oxbow Fish Hatchery

Adult Hatchery spring Chinook returning from Rapid River FH releases to Hells Canyon will be trapped at the Hells Canyon Fish Trap and transferred to Rapid River FH to provide broodstock necessary to achieve mitigation goals for Rapid River FH, and to provide information for analysis of run composition.

2.6.6.1. Projected adult return - Approximately, 2,500 spring Chinook are needed for broodstock for the Rapid River FH spring Chinook salmon program. Some of these fish will be trapped at the Hells Canyon Trap facility and transferred to Rapid River FH. *Kent Hills/Ralph Steiner*

2.6.6.2. Ladder operation - The Hells Canyon Trap will operate three days/week Monday – Wednesday as flows permit (less than 50k cfs). Trapping for spring Chinook salmon will begin in May and proceed to into July 2008 depending on returns to Rapid River FH. The trap is operated by IPC and fish are transported to Oxbow FH for holding or distribution.

Spring Chinook salmon to be held for spawning will be held at Oxbow FH for transport to Rapid River FH weekly or more often depending on water temperatures. Fish to be transported to Rapid River FH will be loaded into a 1,000-gallon tanker and transported by IPC personnel. *Kent Hills/Ralph Steiner*

2.6.6.3. Adult fish health - Adult spring Chinook salmon to be held for broodstock will receive an intra-peritoneal injection of erythromycin at a dose of 20 mg/kg to limit pre-spawning mortality due to BKD. Once transported to Rapid River Hatchery, these fish will receive the same culture and fish health protection as Chinook returning to this facility. *Doug Munson*

2.6.6.4. Adult out planting/marking - Depending on the number of returning adults additional marked adult hatchery spring Chinook may be trapped and shared between Idaho, Oregon, and the Nez Perce Tribe. Fish released into active fisheries will receive a right operculum punch. Dispersed fish will not be anesthetized or treated with antibiotics. Unmarked Chinook salmon will be counted, sexed, measured, given a right operculum punch to identify recaptures, and released below Hells Canyon Dam. They will not be anesthetized or treated with antibiotics. *Kent Hills/Ralph Steiner*

2.6.6.5. Carcass disposition - Carcasses will be placed into a garbage dumpster and picked up weekly by the local sanitation company. They will be transported to the Halfway transfer station and eventually to an approved ODEQ landfill. Another option is now available through the Mitigation of Nutrient Driven Marine project headed up by Gregg Servheen and Lance Hebdon of IDFG. Carcasses for this study are picked up and frozen until such time they are turned into analogs for use in various streams studies on the effect of marine nutrient enhancement. This option is being studied for logistic needs and ability to store the carcasses. *Kent Hills*

2.6.6.6. Adult monitoring and evaluation - All fish entering the trap will be electronically scanned for passive induced transponder (PIT) tags and scrutinized for jaw-tags, visual identification (VI) tags, radio transmitters, and fin clips. Each fish will receive a right operculum punch to identify Snake River returns. After being added to Rapid River FH broodstock, monitoring will be consistent with practices at Rapid River FH. *Kent Hills/ Ralph Steiner*

2.6.6.7. Spawning/egg take plans, mating protocol - See Rapid River FH. *Kent Hills/ Ralph Steiner*

2.6.6.8. Egg incubation - It may be necessary to transport green eggs from Rapid River FH to Oxbow FH for incubation. Eggs for transport will be placed in egg tubes and water hardened in coolers filled with 100-ppm iodophor of one hour. After one hour, iodophor will be displaced from the coolers with well water. About one gallon of ice will be added, and the coolers sealed for transport. When the green eggs arrive at Oxbow FH they will be disinfected in iodophor then placed in vertical incubation stacks at a rate of one female/tray. Green eggs will be incubated to eye-up, enumerated, picked, and returned to Rapid River FH. When they arrive at Rapid River FH they will be disinfected in iodophor

and placed in vertical stack incubators. The EFHL will notify Oxbow FH with the results ELISA BKD analysis and culling will take place at Oxbow FH. *Kent Hills/Ralph Steiner*

2.6.6.9. Fish Health – Juvenile spring Chinook salmon are not reared at Oxbow Hatchery. Juveniles will be reared at Rapid River Hatchery and will receive the same fish health services as the Rapid River spring Chinook salmon. *Doug Munson*

2.6.6.10. Communication - Trapping information will be uploaded to the IDFG daily and release data will be uploaded at least weekly. Trap date will be sent to IPC weekly. *Kent Hills/Ralph Steiner*

2.6.7 Eagle Fish Hatchery

Eagle FH currently has no plans to collect eyed-eggs from the WFYF or the EFSR and will not spawn maturing adults in 2008.

2.5.7.1. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Chinook Salmon Captive Propagation Technical Oversight Committee (CSCPTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Jeff Heindel*

2.6.8 Shoshone Bannock Tribes Egg Box Program

To maintain, rehabilitate, and enhance salmon population viability, the SBT initiated an in-stream incubation program in Dollar Creek, a tributary of the South Fork Salmon River. Eyed summer Chinook eggs are placed into hatch-boxes in late fall, incubated in stream water, and allowed to volitionally emigrate at approximately the same time as fry in the natural system. This supplementation activity is designed to mimic natural production to develop a naturally spawning tributary component of the SFSR in order to increase abundance, genetic diversity, and productivity of summer Chinook salmon as well as increase knowledge of fishery management and hatchery supplementation.

2.6.8.1. Projected adult return – The current information on this project does not allow us to make accurate adult projections. *Lytle Denny*

2.6.8.2. Ladder operation – Same procedures and guidelines for McCall FH 2.6.2.2.

2.6.8.3. Adult fish health – Same procedures and guidelines for McCall FH 2.6.2.3.

2.6.8.4. Adult outplanting/marking – N/A

2.6.8.5. Carcass disposition – Same procedures and guidelines for McCall FH 2.6.2.5.

2.6.8.6. Monitoring and evaluation – All paired spawners will be fin-clipped (females) and operculum punched (males) to collect genetic tissue for future monitoring and evaluation activities as described by Jones and Ardren (2003). In-stream incubators will be visually checked monthly and data collected for cleanliness, water temperature, dissolved oxygen, conductivity, pH, flow velocity, sediment accumulation, and life stage for each box

location. Future evaluations include pairing Dollar Creek with two control streams to compare fish densities and dispersal (treatment effect) through snorkeling and/or electroshocking. Adult evaluation through redd counts occur annually. *Lytle Denny/Kurt Tardy*

2.6.8.7. Spawning/egg take plans, mating protocol – Approximately 88 reserve females, including potential for BKD culling, will be spawned and incubated at the McCall FH to produce 300,000 eyed eggs for the SBT in-stream incubation project in Dollar Creek. The in-stream program adheres to 1:1 spawning protocol. *Gene McPherson/Lytle Denny*

2.6.8.8. Egg incubation – Same procedures and guidelines for McCall FH 2.6.2.8. Once placed into in-stream hatch boxes, incubation will occur on stream water in the natural environment. *Lytle Denny*

2.6.8.9. Juvenile fish health - Health is estimated from visual observation only.

2.6.8.10. Communication - McCall FH and SBT personnel will coordinate to determine a schedule to spawn, obtain and transfer eyed eggs. Results and conclusions from the in-stream incubation project will be presented in an annual report. *Steve Kammeyer/Lytle Denny*

2.6.9 Yankee Fork Supplementation Project (YFCSS)

The goal of the YFCSS is to maintain, rehabilitate, and enhance salmon population viability with harvest potential, aid to spatial distribution, and contribute to diversity. In addition, supplementation action in Yankee Fork is necessary to prevent near-term extinction, avoid further losses of genetic variation, and promote recovery of the ESA listed population. Currently, parties are reviewing the Yankee Fork Hatchery and Genetics Management Plan and acknowledge the importance of accomplishing future short-term goals.

2.6.9.1. Production status – Chinook salmon releases were initiated in 2006 with the release of 135,934 smolts into the Yankee Fork Salmon River.

2.6.9.2 Projected adult return – The preseason run prediction for Yankee Fork based on the release of 135,934 smolts and a SAR of 0.3% is 408 individuals. Using a regression developed for Sawtooth Fish Hatchery, the SBT anticipates a return of 217 four year olds (2-ocean) in 2009 and 121 five year olds (3-ocean) in 2010.

2.6.9.3 Weir operation – Upon approval, the Yankee Fork portable picket weir is scheduled to be installed in the summer of 2008 and, thereafter, when flow drops to a level for safe installation. Weir site selection will be dependent on ease of access, installation, operation, and protection from vandalism.

2.6.9.4 Adult fish health – Adults will initially be inspected for any external fungi, which is a possible sign of ectoparasitic infestation. Samples for viral, bacterial, and parasitic disease agents will be taken at spawning. Viral assays are conducted on ovarian fluid and

kidney samples from a number of spawned females characteristic of the broodstock are analyzed in bacterial assays. Whirling disease will be tested for by obtaining head wedges from a proportion of the spawning broodstock.

2.6.9.5 Adult outplanting/marking – Three groups of Chinook salmon will be collected at the YFCSS weir: NOR, NOR/HOR, and HOR. Naturally spawned adults will not be marked. Supplementation adults (NOR/HOR) will be PIT tagged and/or coded-wire tagged. General production fish will also be PIT tagged and/or coded-wire tagged. Fish will be classified into one of the groups and numbered based on capture order. Broodstock will be collected in pairs to maintain a 1:1 spawning ratio of males to females. Coded-wire tag identification or genetic sampling can determine individual relatedness to limit artificial selection and maximize genetic variability by mating unrelated fish. Surplus hatchery-origin fish will be released above the Yankee Fork weir for natural spawning. There will be no limits placed on the number of hatchery-reared adults allowed to spawn naturally within Yankee Fork. All collected fish in excess of the number required for broodstock purposes will be immediately released above the Yankee Fork weir for natural spawning.

2.6.9.6 Carcass disposition – Adult holdings will be checked once an hour on a daily basis by trap tenders. Mortalities will be removed and data will be collected on date, time, sex, cause of death (if known), and body condition. Biological samples will be collected and placed in proper containers for later analysis. Mortalities will then be spread across the spawning habitat to help replenish depleted marine nutrients in the system.

2.6.9.7. Monitoring and evaluation – Broodstock males and females sampled for genetic analysis and parental assignment. Male samples obtained through an operculum punch; samples from females taken from a caudal fin clip. Scale samples obtained for age and life history determination as a contingency to tissue samples. Proportion of smolts tissue sampled prior to release for confirmation of either naturally produced or hatchery-produced adults returning to Yankee Fork weir. All samples stored in 95% ethanol for later analysis. Determine stratified random sampling sites in Yankee Fork to collect naturally spawned Chinook salmon above the Yankee Fork weir. Electroshocking used in accordance with NMFS ESA permits. Location, fork length, and mass of each individual recorded. Fin clips and scale samples taken from juveniles to link to adult parents and brood year. A proportion of smolts released are PIT tagged to monitor dispersal, emigration, and arrival at Lower Granite Dam by using the SURPH model. Adult returns are monitored through dam and weir counts, creel surveys, CWT information, redd surveys, spawning surveys, and carcass recoveries.

2.6.9.8 Spawning/egg take plans, mating protocol – Approximately 102 female and 102 male spring Chinook salmon are needed annually for broodstock. Males will only be spawned once. In cases of unequal broodstock collection, male holding mortality exceeds female, or late male maturation, males may be spawned twice. Spawning will occur by means of three mating schedules depending on the number of adult returns. Single pair mating (1:1 male to female spawning) will be utilized when there are 10 or more returning adult pairs (≥ 20 adults). Maturing fish will be randomly paired with an unrelated individual of the opposite sex. When adult returns are below 10 pairs (< 20 adults), diallel

or systematic mating will be used. This mating will distribute diversity among progeny by mating each female with every male. Eggs from each female will be split into separate sub-groups and fertilized with the milt of each male. In both methods, backup males will be retained to ensure fertilization. Excess males will be held over for the next spawning date or be segregated for gamete cyropreservation.

2.6.9.9 Egg incubation – Incubation for the YFCSS will occur at the Sawtooth Fish Hatchery. During all incubation periods and processes, pathogen-free well water is used. Eight trays will be used per stack of vertical incubation units. Flows to each eight tray stack will be between five to six gallons per minute (gpm). Trays will be loaded with eggs (3,000 – 5,000) from only one female. Catch basins are in place to eliminate the accumulation of silt and sand within the trays. After 48 hours, formalin treatments (1667 ppm) are issued three times per week to control fungal contamination and are discontinued when eggs reach eye-up. Eyed egg stage is generally reached at 560 FTUs at which eggs are then shocked to locate and remove dead or unfertilized eggs.

2.6.9.10. Juvenile fish health - The IDFG fish health staff will conduct scheduled inspections and random ones if necessary. Individuals may be given injections of Erythromycin-200, oxytetracycline, or other prophylactic treatments to counter specific diseases. During rearing, juveniles will be fed two meals of medicated feed. Disinfection protocols for foot baths, equipment, trucks, vats, raceways, and nets are in place for sanitation purposes. Testing for bacterial kidney disease, whirling disease, and viral replicating agents will be conducted under the Idaho Fish and Game Eagle Fish Health Laboratory between 45 and 30 days prior to release to obtain fish health certification. *Doug Munson*

2.6.9.11 Communication – The YFCSS will complete weekly, monthly, and annual reports to the cooperating agencies during in-season management and post-season analysis, respectively.

2.6.10 Lemhi River Supplementation Project (LRCSS)

The Lemhi River has been chosen by the ICTRT (2006) as one population that must meet the viability criteria as it provides important connectivity to other Major Population Groups, as a large, downstream population and historically may have supported summer Chinook production. Coordinating parties have committed to reviewing options for the Lehmi River to develop details for objectives, rearing strategies and facilities, release numbers, and a mark plan.

As a result, the Shoshone-Bannock Tribes has initiated planning to implement a hatchery supplementation program in the Lemhi River. Planning for this hatchery would commence with FY 2008 funding and include the development of a Hatchery Genetics Management Plan (HGMP) and a feasibility plan which includes engineering, design, and construction costs. Meanwhile, the Tribes would determine the existing population size, genetics, and applicable information for determining the best available stock for re-introduction. Initiation of this project would promote recovery and production of the ESU and help in achieving an ESU standard where the population is no longer at risk or needs protection.

3. Rainbow Trout

3.1 Brood Year 2007-08 Rainbow Trout

3.1.1 Salmon River

Tucannon FH receives 70,000 Kamloops stock eyed eggs (triploid) from Hayspur FH in January. Fish are reared at Tucannon FH until transfer (approximately 52,000 fry at 75 fpp) to Lyons Ferry FH for marking (AD/LV or AD/RV – alternating yearly) and final rearing in July. Approximately 50,000 fish will be transferred to the IDFG in October (15 fpp) for release in the lower Clearwater (25,000) and lower Salmon (25,000) rivers. *Jon Lourack/Bill Horton*

Lyons Ferry FH receives 160,000 Spokane stock eggs from the Spokane FH in December. Eggs are placed in hatching baskets, fry emerge into intermediate rearing tanks, and are transferred to outside raceways in March (~200 fpp). Fish are reared until transfer to the IDFG (160,000 at 60-80 fpp) in May and planted in inland lakes and ponds. *Jon Lourack/Bill Horton*

Recent changes in regulations for importation of fish into the State of Idaho will require import permits issued by both IDFG and the Idaho State Department of Agriculture (ISDA) prior to moving rainbow trout from Lyons Ferry FH. In order to issue permits, fish health inspection certificates are required. Steve Roberts (pathologist for WDFD) will do the sampling. *Doug Burton*

Sawtooth FH: Nampa Fish Hatchery (NFH) supplied SFH with Trout Lodge triploid rainbows for stocking. A total of 53,205 fish were delivered to SFH from May 21 to July 18. Based on 18 sample counts, the fish averaged 3.35 fish per pound and 9.06 inches in length (230mm). SFH personnel stocked a total of 53,400 fish in local lakes and streams. NFH stocked Stanley, Pettit, Perkins, and Alturas lakes in 2007. Due to the presence of *Ichthyophthirius multifilis* (ICH) at Nampa hatchery, all groups of fish transferred to SFH received metaphylactic treatment with formalin prior to the transfer. Gills from 60 individuals per raceway were inspected no more than 10 days prior to transfer. If any trophonts were detected, the transfer would have been delayed for further treatments and another inspection. This protocol will be followed again in 2008.

National Marine Fisheries Service (NMFS) permit #1188 which expired on December 31, 2005, outlines resident rainbow trout release into anadromous waters in the Salmon River drainage. The permit allows that hatchery reared rainbow trout be released in rivers, streams, and lakes with ESA-listed fish. Stocked fish should average in size no greater than 250 mm with no individual longer than 300 mm in length. The 250 mm size restriction would include fish planted in the Salmon River, Valley Creek, and the Yankee Fork Dredge Ponds. The permit stipulates the upper Salmon River cannot be stocked before June 15 and stocked fish must be adipose fin-clipped. Only fish with the adipose fin-clipped may be kept by anglers, thereby protecting wild fish. Rainbow trout received at SFH in 2007 stocked into the river were adipose clipped by NFH personnel and then delivered to SFH

21 days later to allow for withdrawal of MS-222 to comply with label directions. *Brent Snider*

McCall Summer Chinook FH redistributes 100,100 "Put and Take" Troutlodge (Triploid) rainbow trout that are reared to "catchable-size" at Nampa FH, annually. Rainbow trout are brought to MCFH by Nampa FH during in the summer then maintained in the MCFH collection basin prior to redistribution. Catchable rainbow trout outplants take place mid-May through early-September. In 2007, fish transferred to MCFH averaged 3.23 fpp, or 9.6 inch TL in size. These were stocked into 37 waters located in the Payette, Salmon River and Weiser River Drainages near McCall. *Gene McPherson/ Steve Kammeyer*

4. Sockeye Salmon

4.1 Brood Year 2003 Sockeye Salmon

4.1.1 Eagle Fish Hatchery /Burley Creek Fish Hatchery

Note: the following information combines Eagle FH and Burley Creek FH (NOAA Fisheries) together. Approximately 400 – 500 eyed-eggs are needed to meet and maintain genetic diversity for broodstock replacement goals for the Eagle Hatchery Sockeye salmon captive broodstock program. A replicate group of eyed-eggs is transferred to Burley Creek FH (NOAA Fisheries Manchester Marine Lab in Washington State) as a spread the risk strategy. Spawn crosses made from each brood year will also meet production goals in the Salmon River Basin. Production goals may be adjusted annually based on recommendations provided by the Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) to agency policy staff. Current production goals for the Salmon River Basin are: 50,000 eyed-eggs to Pettit Lake released in November/December; 120,000 pre-smolts released in October (85,000 Redfish Lake, 15,000 Pettit Lake and 20,000 Alturas Lake); and 300 captive reared adults released in September. Note: Production rearing (pre-smolts and smolts) is included in Sawtooth FH and Oxbow FH summaries.

4.1.1.1. Production status - Currently five BY2003 sockeye are in culture between the two facilities. This number includes two sockeye in the captive broodstock program and three sockeye in the adult release production group. *Carlin McAuley/Dan Baker*

4.1.1.2. Projected release - NOAA Fisheries currently has three sockeye in production for adult releases into Redfish Lake. All remaining age-5 sockeye typically mature, three BY2003 are scheduled for release in September. *Dan Baker/Carlin McAuley*

4.1.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish health sampling does not occur prior to transporting juveniles from Eagle FH to Manchester or adult sockeye from Manchester back to Idaho. However, all fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained relatively disease free. *Mark Petersen/Doug Munson*

4.1.1.4. Monitoring and evaluation - All adults released are monitored after release to determine spawning behavior information (spawn timing, spawning locations, number of redds developed, etc.). This information is collected using radio transmitters, visual observations and snorkeling over spawning areas. *Mike Peterson*

4.1.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson/Carlin McAuley*

4.2 Brood Year 2004 Sockeye Salmon

Note: the following information combines Eagle FH and Burley Creek FH (NOAA Fisheries) together. Approximately 400 – 500 eyed-eggs are needed to meet and maintain genetic diversity for broodstock replacement goals for the Eagle Hatchery Sockeye salmon captive broodstock program. A replicate group of eyed-eggs is transferred to Burley Creek FH (NOAA Fisheries Manchester Marine Lab in Washington State) as a spread the risk strategy. Spawn crosses made from each broodyear will also meet production goals in the Salmon River Basin. Production goals may be adjusted annually based on recommendations provided by the Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) to agency policy staff. Current production goals for the Salmon River Basin are: 50,000 eyed-eggs to Pettit Lake released in November/December; 120,000 pre-smolts released in October (85,000 Redfish Lake, 15,000 Pettit Lake and 20,000 Alturas Lake); 80,000 smolts released in May (40,000 Salmon River and 40,000 Redfish Lake Creek) and 300 captive reared adults released in September. Note: Production rearing (pre-smolts and smolts) is included in Sawtooth FH and Oxbow FH summaries.

4.2.1.1. Production status - Currently 62 BY2004 sockeye are in production at the two facilities. The captive broodstock program is represented by 13 fish and the adult release production group contains 49 fish. *Dan Baker/Carlin McAuley*

4.2.1.2. Projected release - All maturing fish from NOAA Fisheries adult release group (approximately 45) will be released in September, the remaining immature fish will remain in culture until mature. *Carlin McAuley/Dan Baker*

4.2.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish health sampling does not occur prior to transporting juveniles from Eagle FH to Manchester or adult sockeye from Manchester back to Idaho. However, all fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained relatively disease free. *Doug Munson/Mark Peterson*

4.2.1.4. Monitoring and evaluation - All adults released are monitored after release to determine spawning behavior information (spawn timing, spawning locations, number of redds developed, etc.). This information is collected using radio transmitters, visual observations and snorkeling over spawning areas. *Mike Peterson*

4.2.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson/Carlin McAuley*

4.3 Brood Year 2005 Sockeye Salmon

4.3.1 Eagle Fish Hatchery /Burley Creek Fish Hatchery

Note: the following information combines Eagle FH and Burley Creek FH (NOAA Fisheries) together. Approximately 400 – 500 eyed-eggs are needed to meet and maintain genetic diversity for broodstock replacement goals for the Eagle Hatchery Sockeye salmon captive broodstock program. A replicate group of eyed-eggs is transferred to Burley Creek FH (NOAA Fisheries Manchester Marine Lab in Washington State) as a spread the risk strategy. Spawn crosses made from each brood year will also meet production goals in the Salmon River Basin. Production goals may be adjusted annually based on recommendations provided by the Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) to agency policy staff. Current production goals for the Salmon River Basin are: 50,000 eyed-eggs to Pettit Lake released in November/December; 120,000pre-smolts released in October (85,000 Redfish Lake, 15,000 Pettit Lake and 20,000 Alturas Lake); 80,000 smolts released in May (40,000 Salmon River and 40,000 Redfish Lake Creek) and 300 captive reared adults released in September. Note: Production rearing (pre-smolts and smolts) is included in Sawtooth FH and Oxbow FH summaries.

4.3.1.1. Production status - Currently 1,170 fish are in culture representing BY2005. A large portion (approximately 80%) will mature as three year olds and will be incorporated into the broodstock spawning matrix or released to Redfish Lake. The fish that do not mature as three year olds will remain in culture until maturity. The BY2005 captive broodstock group is represented by 749 fish and the adult release group is represented by 421 fish. *Dan Baker/Carlin McAuley*

4.3.1.2. Projected release - All maturing fish from NOAA Fisheries adult release group (approximately 370) will be released in September, the remaining immature fish will remain in culture until mature. *Carlin McAuley/Dan Baker*

4.3.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish health sampling does not occur prior to transporting juveniles from Eagle FH to Manchester or adult sockeye from Manchester back to Idaho. However, all fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained relatively disease free. *Doug Munson/Mark Peterson*

4.3.1.4. Monitoring and evaluation - All adults released are monitored after release to determine spawning behavior information (spawn timing, spawning locations, number of redds developed, etc.). This information is collected using radio transmitters, visual observations and snorkeling over spawning areas. *Mike Peterson*

4.3.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson/Carlin McAuley*

4.4 Brood Year 2006 Sockeye Salmon

4.4.1 Eagle Fish Hatchery /Burley Creek Fish Hatchery

Note: the following information combines Eagle FH and Burley Creek FH (NOAA Fisheries) together. Approximately 800 eyed-eggs are needed to meet and maintain genetic diversity for broodstock replacement goals for the Eagle Hatchery Sockeye salmon captive brood stock program. A replicate group of eyed-eggs is transferred to Burley Creek FH (NOAA Fisheries Manchester Marine Lab in Washington State) as a spread the risk strategy. Spawn crosses made from each brood year will also meet production goals in the Salmon River Basin. Production goals may be adjusted annually based on recommendations provided by the Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) to agency policy staff. Current production goals for the Salmon River Basin are: 50,000 eyed-eggs to Pettit Lake released in November/December; 120,000 pre-smolts released in October (85,000 Redfish Lake, 15,000 Pettit Lake and 20,000 Alturas Lake); 80,000 smolts released in May (40,000 Salmon River and 40,000 Redfish Lake Creek) and 300 captive reared adults released in September. Note: Production rearing (pre-smolts and smolts) is included in Sawtooth FH and Oxbow FH summaries.

4.4.1.1. Production status - Currently 1,362 juveniles are in culture representing BY2006. A small portion (approximately 10%) will mature as two year olds and will be incorporated into the broodstock spawning matrix. The fish that do not mature as two year olds will remain in culture until maturity. The BY2006 captive broodstock group is represented by 947 juveniles and the adult release group is represented by 415 juveniles. *Dan Baker/Carlin McAuley*

4.4.1.2. Projected release - No BY2006 sockeye salmon are projected for release in 2008. *Dan Baker*

4.4.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish sampling does not occur prior to transporting juveniles from Eagle FH to the NOAA Fisheries facility in Washington State. However, all fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained relatively disease free. *Doug Munson/Mark Peterson*

4.4.1.4. Monitoring and evaluation - NA

4.4.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Carlin McAuley*

4.4.2 Sawtooth Fish Hatchery
Sawtooth FH is used as a rearing station for the sockeye pre-smolt and smolt production. Eyed-eggs are transferred to Sawtooth in November and December to meet production goals. Current production goals at Sawtooth are 100,000 pre-smolts for Salmon River Basin Lakes in October and up to 80,000 smolts for Salmon River Basin released in May.

4.4.2.1. Production status - Sawtooth FH is currently rearing 73,945 juveniles in two outside raceways. These fish are scheduled to be released in May 2008 as smolts. *Brent Snider/Dan Baker*

4.4.2.2. Projected release - Approximately 70,000 smolts will be released the first week in May at the Sawtooth FH weir on the Salmon River and/or below the smolt trap on Redfish Lake Creek. *Brent Snider/Dan Baker*

4.4.2.3. Fish health - Fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained disease free. A 60 fish sample will be tested before release for viral and bacterial pathogens. All pathology guidelines will be met before pre-smolts are released. *Doug Munson*

4.4.2.4. Monitoring and evaluation - All smolts have been ad-clipped, CWT tagged and a representative sample (1,000) will be PIT tagged before release. Survival to Lower Granite Dam will be evaluated as well as smolt to adult survival from different release strategies. *Mike Peterson*

4.4.2.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson*

4.4.3 Oxbow Fish Hatchery
Oxbow FH is operated by Oregon Department of Fish and Wildlife (ODFW). Oxbow FH was identified by SBSTOC members as a facility that could rear an additional 80,000 sockeye to the smolt stage. With modifications to the facility, the smolt production goal would be 150,000 smolts annually. Eyed-eggs are currently transferred to the facility in November/December to meet production goals. After an 18 month rearing cycle the juveniles will be transferred to Idaho and released in the Salmon River Basin.

4.4.3.1. Production status - Oxbow FH is currently rearing 76,924 juveniles in two outside raceways. These fish are scheduled to be released in May 2008 as smolts. *Dan Baker /Duane Banks*

4.4.3.2. Projected release - Approximately 75,000 smolts are scheduled for release the first week in May at the Sawtooth FH weir on the Salmon River and/or below the smolt trap on Redfish Lake Creek. *Dan Baker/Duane Banks*

4.4.3.3. Fish health - Fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained disease free. Two, 60 fish samples will be tested during culture for viral and bacterial pathogens. All pathology guidelines will be met before juveniles are transferred back to Idaho. *Doug Munson/Tony Amandi*

4.4.3.4. Monitoring and evaluation - All smolts have been ad-clipped, CWT tagged and a representative sample (1,000) will be PIT tagged before release. Survival to Lower Granite Dam will be evaluated as well as smolt to adult survival from different release strategies. *Mike Peterson*

4.4.3.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson*

4.5 Brood Year 2007 Sockeye Salmon

4.5.1 Eagle Fish Hatchery /Burley Creek Fish Hatchery

Note: the following information combines Eagle FH and Burley Creek FH (NOAA Fisheries) together. Approximately 800 eyed-eggs are needed to meet and maintain genetic diversity for broodstock replacement goals for the Eagle Hatchery Sockeye salmon captive broodstock program. A replicate group of eyed-eggs is transferred to Burley Creek FH (NOAA Fisheries Manchester Marine Lab in Washington State) as a spread the risk strategy. Spawn crosses made from each brood year will also meet production goals in the Salmon River Basin. Annual production goals be adjusted annually based on recommendations provided by the Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) to agency policy staff. Current production goals for the Salmon River Basin are: 50,000 eyed-eggs to Pettit Lake released in November/December; 120,000 pre-smolts released in October (85,000 Redfish Lake, 15,000 Pettit Lake and 20,000 Alturas Lake); 150,000 smolts released in May (75,000 Salmon River and 75,000 Redfish Lake Creek) and 300 captive reared adults released in September. Note: Production rearing (pre-smolts and smolts) is included in Sawtooth FH and Oxbow FH summaries.

4.5.1.1. Production status - Currently Eagle FH has 799 fry representing BY2007 captive broodstock. NOAA Fisheries has 400 fry representing BY2007 captive broodstock and 496 fry representing adult release production. *Dan Baker/Carlin McAuley*

4.5.1.2. Projected release - No BY2007 sockeye salmon are projected for release in 2008. *Dan Baker*

4.5.1.3. Fish health - Due to the relatively low number of fish reared annually, pre-transfer fish sampling does not occur prior to transporting juveniles from Eagle FH to the NOAA Fisheries facility in Washington State. However, all fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained relatively disease free. *Doug Munson/Mark Peterson*

4.5.1.4. Monitoring and evaluation - *Mike Peterson*

4.5.1.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson/Carlin McAuley*

4.5.2 Sawtooth FH

Sawtooth FH is used as a rearing station for the sockeye pre-smolt and smolt production. Eyed-eggs are transferred to Sawtooth in November and December to meet production goals. Current production goals at Sawtooth are 120,000 pre-smolts for Salmon River Basin Lakes in October and 50,000 smolts for Salmon River Basin released in May.

4.5.2.1. Production status - Sawtooth FH received 231,786 eyed eggs from Eagle FH and NOAA Fisheries to make up their BY2007 production group. Approximately 120,000 pre-smolts and 75,000 smolts will be produced from this group. *Brent Snider/Dan Baker*

4.5.2.2. Projected release - BY2007 production releases will include pre-smolts to Salmon River Basin Lakes. Redfish Lake will receive 85,000 pre-smolts in October, Alturas Lake will receive 20,000 pre-smolts in October and Pettit Lake will receive 15,000 pre-smolts in October. *Dan Baker*

4.5.2.3. Fish health - Fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained disease free. A 60 fish sample will be tested before release for viral and bacterial pathogens. All pathology guidelines will be met before pre-smolts are released. *Doug Munson*

4.5.2.4. Monitoring and evaluation - All pre-smolts are ad-clipped and a representative sample will be PIT tagged before releases. Out-migration will be monitored the following spring to estimate out-migration from different release strategies. A representative sample of out-migrants will be PIT tagged and survival will be monitored downstream as smolts pass each dam. *Mike Peterson*

4.5.2.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson*

4.5.3 Oxbow FH

Oxbow FH is operated by Oregon Department of Fish and Wildlife (ODFW). Oxbow FH was identified by SBSTOC members as a facility that could rear an additional 80,000 sockeye to the smolt stage. With modifications to the facility, the smolt production goal would be 150,000 smolts annually. Eyed-eggs are currently transferred to the facility in November/December to meet production goals. After an 18 month rearing cycle the juveniles will be transferred to Idaho and released in the Salmon River Basin.

4.5.3.1. Production status - NOAA Fisheries transferred 80,042 eyed-eggs in November and December to meet production goals. Currently Oxbow FH has 80,958 fry in production scheduled for a 2009 smolt release. *Duane Banks/Dan Baker*

4.5.3.2. Projected release - No projected release of BY 2007 juveniles in 2008. *Dan Baker*

4.5.3.3. Fish health - Fish that die in the program during the course of any rearing year are assayed for typical viral and bacterial pathogens. To date, sockeye salmon have remained disease free. Two, 60 fish samples will be tested during culture for viral and bacterial pathogens. All pathology guidelines will be met before juveniles are transferred back to Idaho. *Doug Munson/Tony Amandi*

4.5.3.4. Monitoring and evaluation - NA

4.5.3.5. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson*

4.6 Brood Year 2008 Sockeye Salmon

4.6.1 BY08 Eagle Fish Hatchery /Burley Creek Fish Hatchery

Note: the following information combines Eagle FH and Burley Creek FH (NOAA Fisheries) together. Approximately 800 – 900 eyed-eggs are needed to meet and maintain genetic diversity for broodstock replacement goals for the Eagle Hatchery Sockeye salmon captive broodstock program. A replicate group of eyed-eggs is transferred to Burley Creek FH (NOAA Fisheries Manchester Marine Lab in Washington State) as a spread the risk strategy. Spawn crosses made from each brood year will also meet production goals in the Salmon River Basin. Annual production goals may be adjusted annually based on recommendations provided by the Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) to agency policy staff. Current production goals for the Salmon River Basin are: 50,000 eyed-eggs to Pettit Lake released in November/December; 120,000 pre-smolts released in October (85,000 Redfish Lake, 15,000 Pettit Lake and 20,000 Alturas Lake); 80,0000 smolts released in May (40,000 Salmon River and 40,000 Redfish Lake Creek) and 300 captive reared adults released in September. Note: Production rearing (pre-smolts and smolts) is included in Sawtooth FH and Oxbow FH summaries.

4.6.1.1. Projected adult return - Projected anadromous adults returning in 2008 to Salmon River Basin weirs (Sawtooth FH weir and Redfish Lake Creek weir) is 100-150 sockeye. *Mike Peterson*

4.6.1.2. Ladder operation - Fish weirs on Salmon River at Sawtooth FH and Redfish Lake Creek are monitored from mid-July through mid-September. All anadromous sockeye trapped are returned to Eagle FH for temporary holding. *Brent Snider/Dan Baker*

4.6.1.3. Adult fish health - Adults returned to Eagle FH to be incorporated into the spawning matrix are sampled for all viral and bacterial pathogens. Special precautions are taken to isolate/quarantine this group from the captive population. *Doug Munson*

4.6.1.4. Adult outplanting/marking - Returning adults will be incorporated into the spawning matrix at Eagle FH and/or released with captive reared adults to Redfish Lake. *Dan Baker/Mike Peterson*

4.6.1.5. Carcass disposition - All carcasses as a result of spawning or pre-spawn mortalities will be disposed of at the local rendering plant. *Dan Baker*

4.6.1.6. Adult monitoring and evaluation - Adults released to Redfish Lake may receive radio transmitters to monitor their activities after release. Visual observation and snorkeling over known spawning areas will also be used to evaluate spawning behavior. *Mike Peterson*

4.6.1.7. Spawning/egg take plans, mating protocol - Returning anadromous adults that are not released will be incorporated into the captive broodstock spawning matrix at Eagle FH. The spawning matrix used at Eagle FH is a 1 x 3 matrix. Crosses are made based on least related individuals determined from micro satellite analysis. Every attempt is made to represent all males in the population equally. *Dan Baker*

4.6.1.8. Egg incubation - Eggs will be incubated at 8 degrees Celsius until the eyed-stage. Survival to eye will be calculated and eyed –eggs will be used in a variety of release strategies (depending on pathology results of the males and females used in the spawn crosses. *Dan Baker*

4.6.1.9. Projected releases - Pettit Lake receives about 50,000 eyed-eggs as a result of spawning operations at Eagle FH and NOAA Fisheries. *Dan Baker*

4.6.1.10. Communication - Eagle FH produces monthly updates provided to IDFG Fisheries Bureau. Stanley Basin Sockeye Technical Oversight Committee (SBSTOC) meets bi-monthly providing program updates to participating agencies. *Dan Baker/Mike Peterson/Carlin McAuley*

5. Contacts

Name	Agency	Phone No.	email
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6. Appendices

A. Snake River Germplasm Repository Cryopreserved Semen Request Form

Snake River Germplasm Repository Committee
Bill Young
P.O. Box 1942, 125 South Mission St
McCall, ID 83638
Phone: (208) 634-5290
Fax: (208) 634-4097

Snake River Germplasm Repository Cryopreserved Semen Request Form

Name: _____Affiliation: _____
Phone number: (_____)_____Address: _____
Date of request: _____Date need by: _____
Species/stock requested: _____Hatchery or wild/natural: _____
Number of individuals: _____Number of straws needed: _____0.5ml _____5.0ml
Reason for request (clearly demonstrate need or type of hatchery program): _____
_____
_____
_____
_____
_____
_____
Fertilization experience using cryopreserved semen: _____
_____
_____
Name, address, and phone number of person samples should be delivered to: _____

Please use additional pages as necessary.
The salmon managers of the Snake River Basin are concerned with how cryopreserved samples are being used and retain the right to refuse samples for inappropriate use of the threatened salmonid species gametes. The Nez Perce Tribe can arrange to deliver and assist in the fertilization of eggs. Please call Bill Young at the McCall Field Office (address above) to coordinate transfer. The Nez Perce Tribe also may request data on the performance of the semen (percent of eggs fertilized, post-thaw sperm motility, etc.).

Signature: _____Date: _____

7. Tables

Table 1. LSRCP, Salmon River Basin Steelhead Proposed Releases, 2008.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD	# CWT	# PIT [1/]	Other Marks	Comments
Hagerman NFH	FWS	STH	Saw A	2007	Sawtooth Weir	4/7-4/25	810,000	782,000	782,000	80,000	10,000		Production
			Saw A	2007	Yankee Fork	4/28-5/2	100,000	103,000	103,000		1,000		Production
			Saw A	2007	Yankee Fork	4/28-5/2	140,000	144,000			1,500		Supplementation
			Pah A	2007	L. Salmon R. Stinky Springs	3/26-4/2	160,000	158,000			4,300		Supplementation
			Pah A	2007	L. Salmon R. Hazard Ck.	3/26-4/2	40,000	40,000			1,500		Supplementation
			Dwor B	2007	L. Salmon R. Stinky Springs	4/2-4/4	100,000	100,000	100,000	30,000	6,400		Production
			Dwor B	2007	East Fork Salmon R.	5/5-5/7	100,000	100,000	100,000	30,000	6,400		Production
							1,450,000	1,427,000	1,085,000	140,000	31,100		
Magic Valley FH	IDFG	STH	Dwor B	2007	L. Salmon R. Stinky Springs	4/8-4/10	215,000	215,000	215,000	60,000	4,700		Production
			Dwor B	2007	Squaw Ck. Pond	4/7-4/8	60,000	60,000	60,000	60,000	1,500		Production -HES
			Dwor B	2007	Squaw Ck.	4/24-4/26	191,000	191,000	191,000		4,800		Production - HES
			Up Sal B	2007	Squaw Ck.	4/8-4/10	60,000	60,000	60,000	60,000	6,200		Production – HES
			E.F. Nat	2007	E.F. Salmon R. Weir	4/30	60,000	60,000	0	60,000	1,300		Supplementation
			Dwor B	2007	E.F. Salmon R. Lower river	4/23-4/26	225,000	225,000	225,000		4300		Production
			Pah A	2007	Slate Cr.	4/28-4/30	30,000	30,000	30,000	30,000	600		Production
			Pah A	2007	Salmon R. Red Rock	4/13-4/17	120,000	120,000	120,000	30,000	1400		Production
			Pah A	2007	Slate Cr.	4/28-4/30	60,000	60,000			1300		Supplementation
			Pah A	2007	Salmon R. Shoup Bridge	4/19-4/23	80,000	80,000	80,000		1400		Production
			Saw A	2007	Yankee Fork	4/29-4/30	60,000	60,000	60,000	30,000	900		Fall agreement
			Saw A	2007	Yankee Fork	4/29-4/30	30,000	30,000			700		Supplementation
			Pah/Saw A	2007	Salmon R. Colston Corner	4/17-4/18	140,000	140,000	140,000	30,000	1400		Production
			Pah/Saw A	2007	Salmon R. Tunnel Rock	4/24-4/27	60,000	60,000	60,000		1300		Production

Table 1. Continued.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD	# CWT	# PIT	Other Marks	Comments
			Pah/Saw A	2007	Salmon R. McNabb Point	4/19-4/20	120,000	120,000	120,000	30,000	1,400		Production
			Pah A	2007	Pahsimeroi R. Trap	4/20	30,000	30,000	30,000	30,000	600		Production
			Saw A	2007	Valley Cr.	4/30	50,000	50,000			1000		Supplementation
							1,591,000	1,591,000	1,391,000	420,000	34,800		
Sawtooth	IDFG/ SBT	STH	Saw A	2008	TBD 4 sites	Apr-May	500,000						Egg box program

[1/] PIT tags are applied representatively to estimate in-river survival of juveniles and to estimate smolt-to-adult return rates for specific release groups or aggregates of release groups. All PIT tag releases are passed through the FCRPS according to protocols developed for the Comparative Survival Study (CSS). Approximately 70 % of PIT tags in each release group are provided by the LSRCP and are treated as like the run at large. The remaining 30% of the tags are supplied by CSS and are bypassed for river reach survival estimates.

Table 2. Idaho Power Company Salmon River Basin Steelhead Proposed Releases (including Snake River), 2008.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD	# CWT	# PIT	Other Marks	Comments
Niagara Springs	IDFG	STH	Pah A	2007	Pahsimeroi R. Trap	4-8 to 4-25	830,000	830,000	830,000	60,000	300		Production
			Oxbow A	2007	L. Salmon R. Stinky Springs	3-28 to 4/3	275,000	260,000	260,000	30,000	300		Production
			Pah A	2007	L. Salmon R. Stinky Springs	4-4 to 4-7&4-26 to4/30	170,000	55,000	55,000	30,000	300		Production
			Oxbow A	2007	Snake River Hells Canyon	3-17 to 3/27	525,000	525,000	525,000	30,000	300		Production
							1,800,000	1,670,000	1,670,000	150,000	1,200		
Pahsimeroi	IDFG/ SBT	STH	Pah A	2008	TBD 4 sites	Apr-May	500,000	467,950					Egg box program

Table 3. LSCRP and BPA, Salmon River Basin Spring/Summer Chinook Proposed Releases, 2008.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD	# CWT	# PIT	Other Marks	Comments
McCall	IDFG	SUCH	S.F.Salmon	2006	S.F. Salmon Knox Bridge	3/17 to 3/21	1,000,000 Smolts	1,061,000 Smolts	755,500 Smolts	253,500 Smolts	52,000 Smolts		100% ad clipped
McCall	NPT	SUCH	Johnson Cr	2006	Johnson Cr Wapiti Ranch	3/10 to 3/14	100,000 Smolts	88,000 Smolts		88,000 Smolts	12,000 Smolts	100% VIE Green Right	100% cwt/VIE No fin clips
McCall	SBT	SUCH	S.F. Salmon	2008	Dollar Cr.	October 08	300,000 Eyed	300,000 Eyed					Eyed Eggs Egg Box Program
Sawtooth	IDFG	SPCH	Upper SR	2006	Sawtooth weir	4/06	1,300,000	174,000	0	174,000	15,000	none	
Sawtooth	IDFG/SBT	SPCH	Upper SR	2006	Yankee Fork	TBD	TBD	TBD	TBD	TBD			YFCSS Project
Eagle	IDFG	SPCH	West Fork Yankee Fork SR	2003 - 2005	WFYF	July	40	325	325	0	325	Orange VIE Left eye	Supplementation
Eagle	IDFG	SPCH	East Fork Salmon R	2003 - 2005	EFSR	July	40	325	325	0	325	Green VIE Left eye	Supplementation

Table 4. Idaho Power Company, Salmon River Spring/Summer Chinook Proposed Releases (including Snake River), 2008.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD	# CWT	# PIT	Other Marks	Comments
Pahsimeroi	IDFG	SUCH	Salmon River	2006	Rearing Ponds	4/15/07	1,000,000	1,038,000	872,100	165,900 (all ad-clipped)	15,000 (all ad-clipped)		CWT Group and PIT tagged group are ad-clipped also. Production
Rapid River	IDFG	SPCH	Rapid River	2006	Snake R. Hells Canyon	3/10-3/14/2008	489,000	489,000	100% AD	0	0	None	Production
Rapid River	IDFG	SPCH	Rapid River	2006	Little Salmon R.	3/10-3/14/2008	200,000	200,000	100% AD	0	0	None	Production
Rapid River	IDFG	SPCH	Rapid River	2006	Rapid River	3/10-4/25/2008	2,500,000	2,500,000	100% AD	112,331	118,000	None	Production; 52,000 PIT IDFG; 66,000 PIT ACOE

Table 5. BPA, Salmon River Redfish Lake Sockeye Proposed Releases (including Snake River), 2008.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD	# CWT	# PIT	Other Marks	Comments
Burley Creek	NOAA	SO	Snake River	2003	Redfish Lake	9/08	0	3	3	0	3		Production
Burley Creek	NOAA	SO	Snake River	2004	Redfish Lake	9/08	50	45	45	0	45		Production
Burley Creek	NOAA	SO	Snake River	2005	Redfish Lake	9/08	250	325	325	0	325		Production
Oxbow	ODFW	SO	Snake River	2006	Salmon River	5/08	20,000	37,000	37,000	37,000	1,000	LV	Production
Oxbow	ODFW	SO	Snake River	2006	Redfish Lake Creek	5/08	20,000	37,000	37,000	37,000	1,000	LV	Production
Sawtooth	IDFG	SO	Snake River	2006	Salmon River	5/08	20,000	36,000	36,000	36,000	1,000		Production
Sawtooth	IDFG	SO	Snake River	2006	Redfish Lake Creek	5/08	20,000	36,000	36,000	36,000	1,000		Production
Sawtooth	IDFG	SO	Snake River	2007	Pettit Lake	10/08	15,000	15,000	15,000	0	1,000		Production
Sawtooth	IDFG	SO	Snake River	2007	Alturas Lake	10/08	20,000	20,000	20,000	0	1,000		Production
Sawtooth	IDFG	SO	Snake River	2007	Redfish Lake	10/08	85,000	85,000	85,000	0	1,000		Production
Eagle/ Burley Ck.	IDFG	SO	Snake River	2008	Pettit Lake	11/15 – 12/15/08	50,000	50,000	0	0	0		Production

Table 6. Rainbow Trout Proposed Releases, 2008

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Date	Release Location	Program Goal	Estimated Release	Marks	Comments
Tucannon/ Lyons Ferry	IDFG	RBT	Kamloops	2007	Oct 2008	Lower Clearwater R.	25,000	25,000	AD/LV/RV	Triploid
Tucannon/ Lyons Ferry	IDFG	RBT	Kamloops	2007	Oct 2008	Lower Salmon R.	25,000	25,000	AD/LV/RV	Triploid
Lyons Ferry	IDFG	RBT	Spokane	2007	April/May	ID inland lakes And ponds	160,000	160,000		
Nampa/ Sawtooth	IDFG	RBT	Trout Lodge	2007	July	Sawtooth basin lakes and streams	50,000	50,000		Triploid

Table 7. LSCRP and BPA, Salmon River Basin Spring/Summer Chinook Proposed Releases, 2009.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD	# CWT	# PIT	Other Marks	Comments
McCall	IDFG	SUCH	S.F.Salmon	2007	S.F. Salmon Knox Bridge	March 2009	1,000,000 Smolts	715,000 Smolts	715,000 Smolts	250,000 Smolts	52,000 Smolts		100% ad clipped
McCall	NPT	SUCH	Johnson Cr	2007	Johnson Cr Wapiti Ranch	March 2009	100,000 Smolts	83,000 Smolts		83,000 Smolts	12,000 Smolts	100% VIE TBD	100% cwt/VIE No fin clips
McCall	SBT	SUCH	S.F. Salmon	2009	Dollar Cr.	October 09	300,000 Eyed	TBD					Eyed Eggs Egg Box Program
Sawtooth	IDFG	SPCH	Upper SR	2007	Sawtooth weir	4/09	1,300,000	295,000	295,000	174,000	15,000	none	
Sawtooth	IDFG/SBT	SPCH	Upper SR	2007	Yankee Fork	TBD	TBD	TBD	TBD	TBD			YFCSS Project
Eagle	IDFG	SPCH	West Fork Yankee Fork SR	2004 - 2006	WFYF	July	40	325	325	0	325	Orange VIE Left eye	Supplementation
Eagle	IDFG	SPCH	East Fork Salmon R	2004 - 2006	EFSR	July	40	325	325	0	325	Green VIE Left eye	Supplementation

Table 8. Idaho Power Company, Salmon River Spring/Summer Chinook Proposed Releases (including Snake River), 2009.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Estimated Release	# AD	# CWT	# PIT	Other Marks	Comments
Pahsimeroi	IDFG	SUCH	Salmon River	2007	Rearing Ponds	4/15/09	1,000,000	950,000	950,000	50,000 (all ad-clipped)	15,000 (all ad-clipped)		CWT Group and PIT tagged group are ad-clipped also. Production
Rapid River	IDFG	SPCH	Rapid River	2007	Snake R. Hells Canyon	3/10-3/14/2009	489,000	489,000	100% AD	0	0	None	Production
Rapid River	IDFG	SPCH	Rapid River	2007	Little Salmon R.	3/10-3/14/2009	200,000	200,000	100% AD	0	0	None	Production
Rapid River	IDFG	SPCH	Rapid River	2007	Rapid River	3/10-4/25/2009	2,500,000	2,500,000	100% AD	100,000	50,000	None	Production; 50,000 PIT IDFG; 66,000 PIT ACOE

Table 9. LSRCP, Salmon River Basin Steelhead Actual Releases, 2007.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Actual Release	# AD	# CWT	# PIT	Other Marks	Comments
Hagerman NFH	FWS	STH	Saw A	2006	Sawtooth Weir	4/9-4/30	810,000	821,364	821,364	81,929	300		Production
			Saw A	2006	Yankee Fork	5/3-5/9	140,000	142,342			300		Supplementation
			Saw A	2006	Yankee Fork	5/3-5/9	100,000	105,513	105,513				Production
			Pah A	2006	L. Salmon R. Stinky Springs	3/26-4/4	160,000	150,115			300		Supplementation
			Pah A	2006	L. Salmon R. Hazard Ck.	4/2	40,000	47,014					Supplementation
			Dwor B	2006	L. Salmon R. Stinky Springs	4/4-4/6	100,000	92,522	92,522		298		Production
			Dwor B	2006	East Fork Salmon R.	5/1-5/2	100,000	102,551	102,551		295		Production
							1,450,000	1,461,421	1,121,950	81,929	1,493		
Magic Valley FH	IDFG	STH	Dwor B	2006	L. Salmon R. Stinky Springs	4/10-4/12	215,000	215,170	215,170	59,415			Production
			Dwor B	2006	Squaw Ck. Pond	4/9-4/10	60,000	59,567	59,567	59,567	500		Production -HES
			Dwor B	2006	Squaw Creek	4/25-4/27	130,000	132,159	132,159		481		Production - HES
			Dwor B	2006	Squaw Creek	4/26	60,000	63,669	63,669	63,669	492		
			Up Sal B	2006	Squaw Ck. Pond	4/9-4/10	60,000	63,597	63,597	63,597	500		Production – HES
			E.F. Nat	2006	E.F. Salmon R. Weir	4/30	50,000	50,592		50,592			Supplementation
			Dwor B	2006	E.F. Salmon R. Lower river	4/23-4/25	195,000	207,487	207,487		299		Production
			Pah A	2006	Salmon R. Red Rock	4/12-4/16	130,000	129,930	129,930	29,705	295		Production
			Pah A	2006	Slate Creek	4/18	40,000	41,136	41,136	31,123	296		Production
			Pah A	2006	Slate Creek	5/1-5/2	60,000	60,392			292		Supplementation
			Pah A	2006	Salmon R. Shoup Bridge	4/17-4/18	80,000	78,847	78,847				Production
			Saw A	2006	Yankee Fork	4/27	60,000	60,783	60,783	31,981			Fall agreement
			Saw A	2006	Yankee Fork	4/27	30,000	30,451			298		Supplementation
			Pah/Saw A	2006	Salmon R. Colston Corner	4/16-4/17	140,000	165,473	165,473	30,466	300		Production
			Pah/Saw A	2006	Salmon R. Tunnel Rock	4/20-4/21	60,000	60,439	60,439				Production
			Pah/Saw A	2006	Salmon R. McNabb Point	4/19-4/20	120,000	119,727	119,727	29,770	298		Production

Table 9. Continued.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Actual Release	# AD	# CWT	# PIT	Other Marks	Comments
			Pah A	2006	Pahsimeroi R. Trap	4/20	30,000	30,591	30,591	30,591			Production
			Saw A	2006	Valley Cr.	4/27-4/28	50,000	54,640			299		Supplementation
							1,570,000	1,624,650	1,428,575	480,476	4,350		
Sawtooth	IDFG/ SBT	STH	Saw A	2006	TBD 4 sites	Apr-May	500,000	496,863					Egg box program

Table 10. Idaho Power Company Salmon River Basin Steelhead Actual Releases (including Snake River), 2007.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Actual Release	# AD	# CWT	# PIT	Other Marks	Comments
Niagara Springs	IDFG	STH	Pah A	2005	Pahsimeroi R. Trap	4-6 to 4-24	830,000	830,447	830,447 (all)	63,422	294		Production
			Oxbow A	2005	Hells Canyon	3-19 to 3-29	525,000	527,701	527,701 (all	30,806	288		Production
			Pah A	2005	L. Salmon R. Hazard Crk & Stinky Springs	4-4 to 4-5 & 4-24 to 4-26	170,000	266,738	266,738 (all)	30,096	298		Production
			Oxbow A	2005	L Salmon R. Hazard Crk	3-29 to 4/4	275,000	239,868	239,868 (all)	31,378	295		Production
							1,800,000	1,864,754	1,864,754	155,702	1,175		
Pahsimeroi	IDFG/ SBT	STH	Pah A	2007	TBD 4 sites	Apr-May	574,778	573,197					Egg box program

Table 11. LSCRP and BPA, Salmon River Basin Spring/Summer Chinook Actual Releases, 2007.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Actual Release	# AD	# CWT	# PIT	Other Marks	Comments
McCall	IDFG	SUCH	S.F.Salmon	2005	S.F. Salmon Knox Bridge	3/19 to 3/22	1,000,000 Smolts	1,087,170 Smolts	772,847 Smolts	262,225 Smolts	52,098 Smolts		100% ad clipped; includes 372 0.8mm PIT tags
McCall	NPT	SUCH	Johnson Cr	2005	Johnson Cr Wapiti Ranch	3/12 to 3/14	100,000 Smolts	120,415 Smolts		120,415 Smolts	12,060 smolts	100% VIE (yellow left)	100% cwt/VIE No fin clips
McCall	SBT	SUCH	S.F. Salmon	2006	Roaring Ck.	8/24 & 8/28	300,000 Eyed	190 females 195 males					Eyed Eggs Egg Box Program
Sawtooth	IDFG	SPCH	Upper SR	2005	Sawtooth weir	4-11	1,300,000	995,262	995,262	121,713	14,934		
Sawtooth	IDFG/SBT	SPCH	Upper SR	2005	Yankee Fork		TBD						
Eagle	IDFG	SPCH	West Fork Yankee Fork SR	2002 - 2005	WFYF	7/12/07	40	269	269	0	269	100% spaghetti tags (except BY2005)	Supplementation
Eagle	IDFG	SPCH	East Fork Salmon R	2002 - 2005	EFSR	7/12/07	40	316	316	0	316	100% spaghetti tags (except BY2005)	Supplementation

Table 12. Idaho Power Company, Salmon River Spring/Summer Chinook Actual Releases (including Snake River), 2007.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Actual Release	# AD	# CWT	# PIT	Other Marks	Comments
Pahsimeroi	IDFG	SUCH	Salmon River	2005	Rearing Ponds	4/09/2007-4/25/2007	1,000,000	987,460	931,993	55,467 (all ad-clipped)	498 (all ad-clipped)		(all cwt and PIT groups ad-clipped) Production
Rapid River	IDFG	SPCH	Rapid River	2005	Snake R. Hells Canyon	3/12 – 3/15/ 2007	350,388	350,388	100% AD	0	0	None	Production
Rapid River	IDFG	SPCH	Rapid River	2005	Little Salmon R.	3/14/ 2007	135,738	135,738	100% AD	0	0	None	Production
Rapid River	IDFG	SPCH	Rapid River	2005	Rapid River	3/21- 4/27/ 2007	2,498,246	2,498,246	100% AD	109,883	104,746		Production; 51,914 PIT- CSS 52,832 PIT ACOE

Table 13. BPA, Salmon River Redfish Lake Sockeye Actual Releases (including Snake River), 2007.

Fish Hatchery	Agency	Species	Stock	Brood Year	Release Location	Release Date	Program Goal	Actual Release	# AD	# CWT	# PIT	Other Marks	Comments
Burley Creek	NOAA	SO	Snake River	2002	Redfish Lake	9/05/07	0	2	2	0	2		Production
Burley Creek	NOAA	SO	Snake River	2003	Redfish Lake	9/05/07	50	53	53	0	53		Production
Burley Creek	NOAA	SO	Snake River	2004	Redfish Lake	9/05/07	250	308	308	0	308		Production
Eagle	IDFG	SO	Snake River	2004	Redfish Lake	9/06 & 9/10/07	0	131	131	0	131		Production
Oxbow	ODFW	SO	Snake River	2005	Redfish Lake Creek	5/08/07	40,000	54,582	54,582	54,582	1,019	RV	Production
Sawtooth	IDFG	SO	Snake River	2005	Salmon River	5/08/07	40,000	46,765	46,765	46,765	1,025		Production
Eagle	IDFG	SO	Snake River	2005	Salmon River	5/08/07	0	329	329	0	329		Production
Sawtooth	IDFG	SO	Snake River	2006	Pettit Lake	10/02/07	15,000	10,113	10,113	0	993		Production
Sawtooth	IDFG	SO	Snake River	2006	Alturas Lake	10/03/07	20,000	9,977	9,977	0	1,005		Production
Sawtooth	IDFG	SO	Snake River	2006	Redfish Lake	10/03/07	85,000	62,015	62,015	0	988		Production
Eagle/ Burley Cr.	IDFG	SO	Snake River	2007	Pettit Lake	11/21-12/06/06	50,000	51,008	0	0	0		Production

Table 14. Summer Steelhead Eyed Egg or Swim Up Fry Requests.

Requesting Hatchery or Program	Source/Hatchery Stock	Current Year Request	Comments
Hagerman NFH	Sawtooth FH - A's Pahsimeroi FH - A's Dworshak NFH - B's	1,150,000 215,000 215,000	Includes 260K for Yankee Fork Via Sawtooth FH Via Clearwater FH
Magic Valley FH	Pahsimeroi FH – A's Sawtooth FH - A's Dworshak – B's Upper Salmon R. – B's Sawtooth FH – E.F. Salmon R Naturals	475,000 480,000 830,000 110,000 50,000	Via Sawtooth FH Via Clearwater FH Via Squaw Pond Via East. Fork Salmon
Niagara Springs FH	Pahsimeroi FH – A's Via Oxbow FH Oxbow FH – A's	1,104,000 880,000	552,000 Eyed Eggs 552,000 Swim Up Fry 440,000 Eyed Eggs 440,000 Swim Up Fry
Shoshone Bannock Tribe	Pahsimeroi FH – A's Sawtooth FH – A's	500,000 500,000	Egg Box Program Egg Box Program